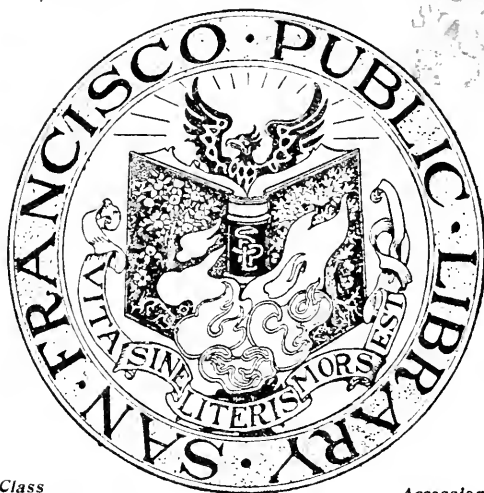


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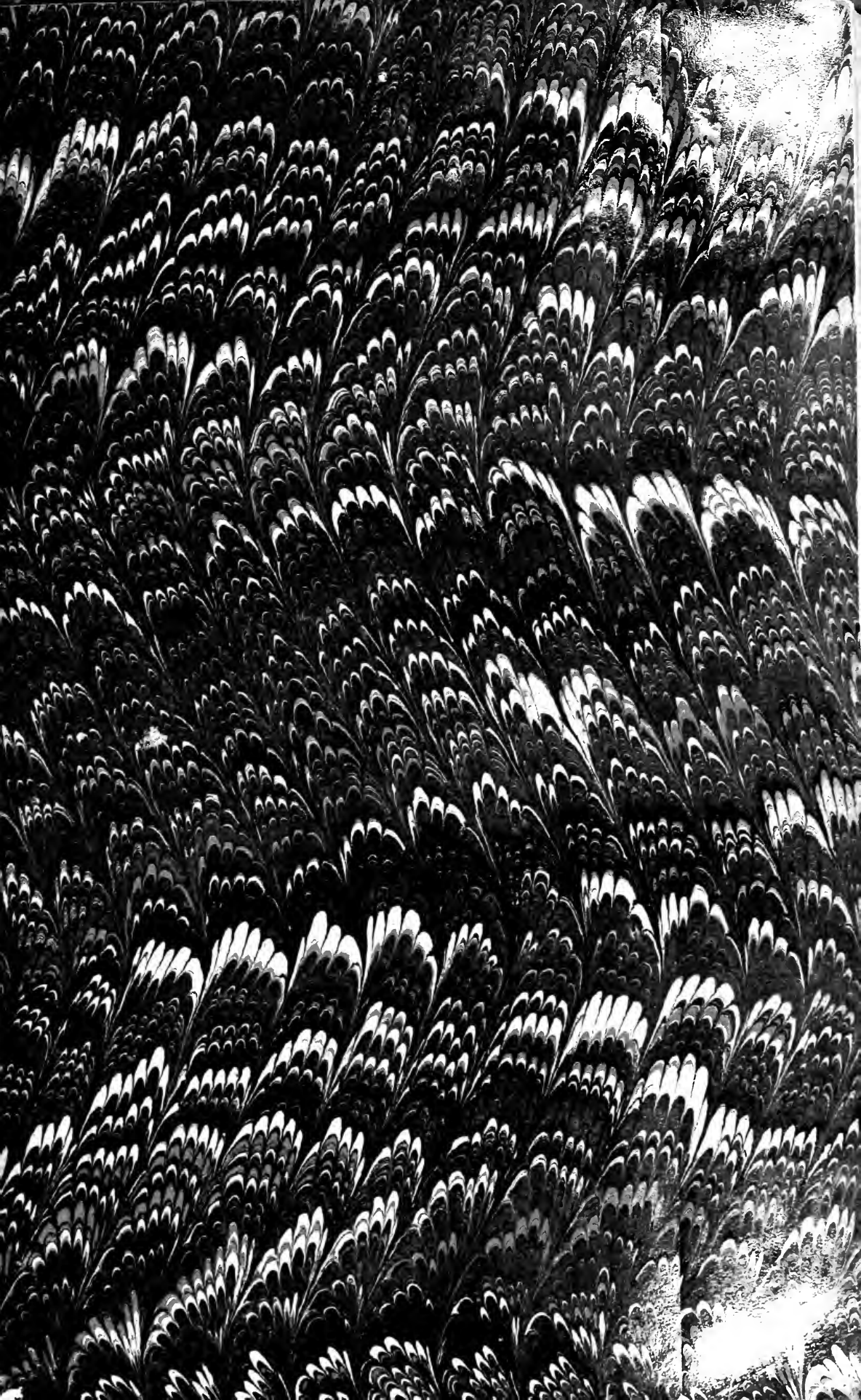
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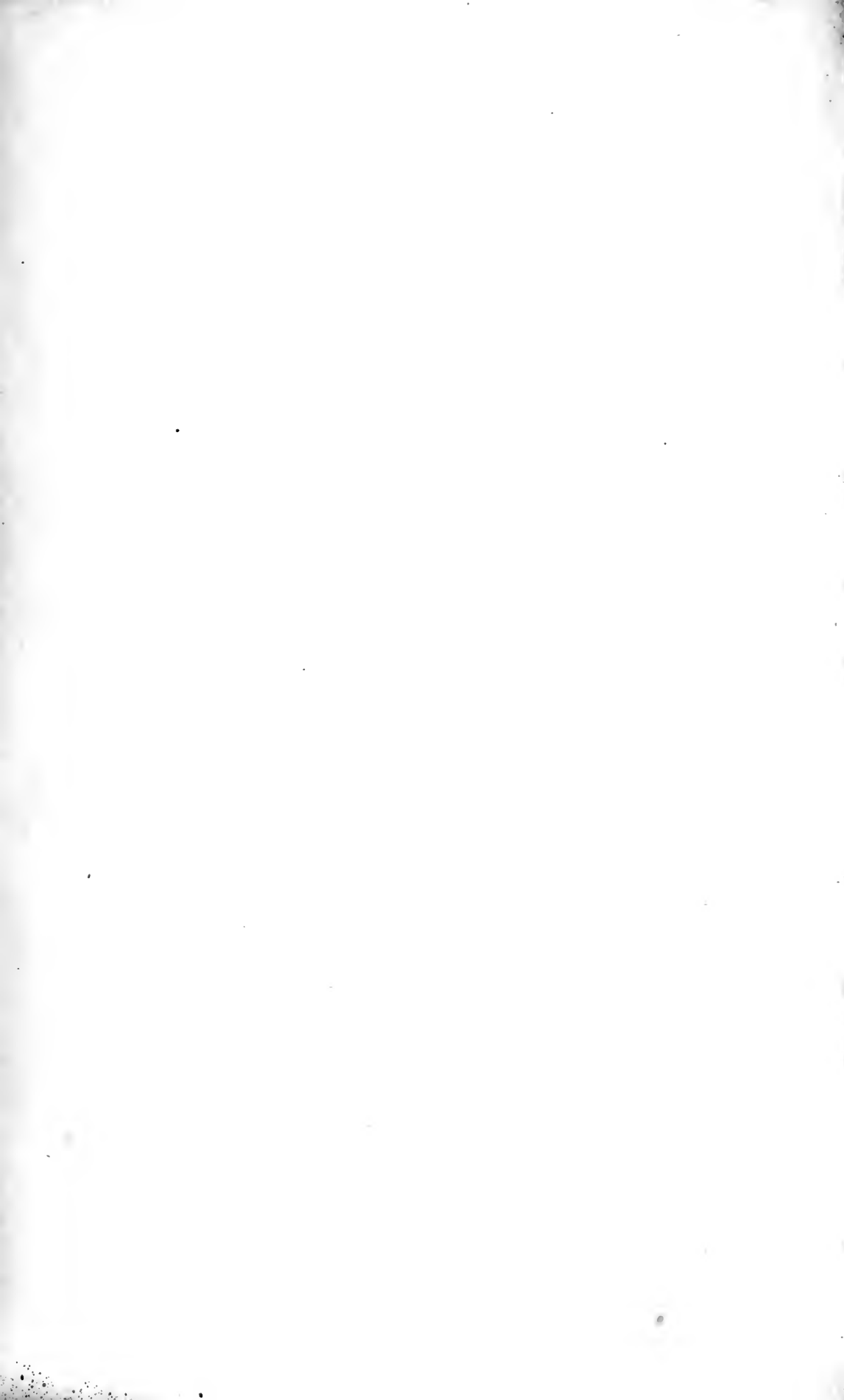
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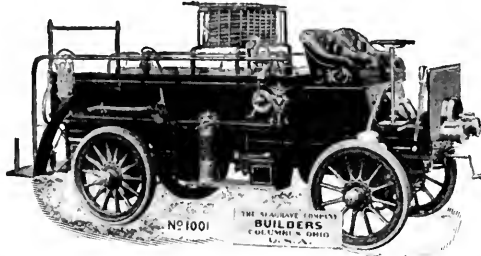
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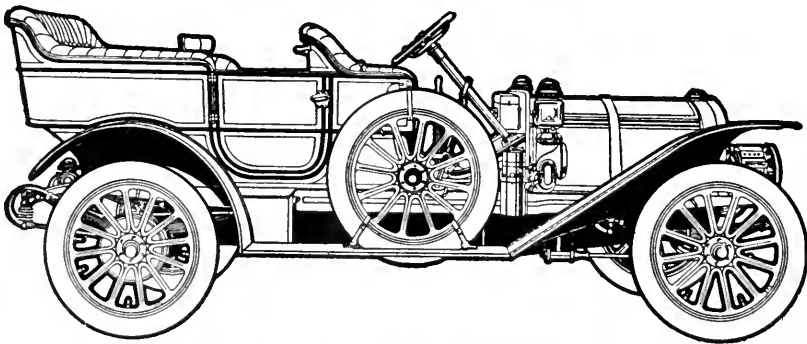
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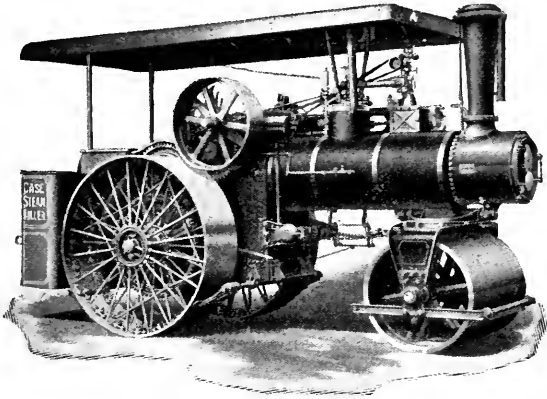
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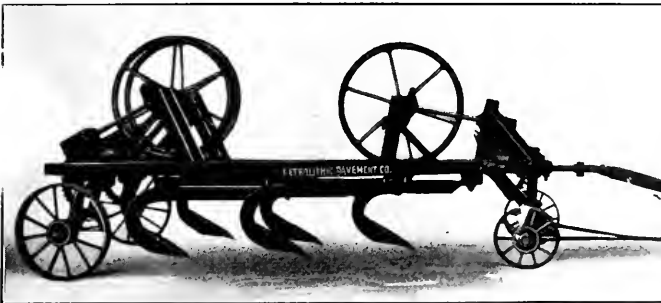
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Entered at Post Office, Santa Clara, Cal., as Second-Class Matter

VOL. XXV

THIRTEENTH YEAR

No. 1

EDITORS	-	-	-	H. A. MASON AND WM. J. LOCKE
EDITORIAL OFFICE	-			NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO
PUBLICATION OFFICE,	-	-	-	SANTA CLARA, CALIFORNIA

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Published Monthly. Yearly Subscription, \$2.00 in Advance. Single Copies, 25 Cents

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PACIFIC MUNICIPALITIES

▲ Journal for Progressive Cities

VOL. XXV

AUGUST 31, 1911

No. 1

THE EXPERIENCE OF CALIFORNIA CITIES AND TOWNS IN MUNICIPAL OWNERSHIP OF PUBLIC UTILITIES

The act passed by the last legislature authorizing any municipality to acquire public utilities such as water and lighting plants, has stimulated the advocates of municipal ownership. Several towns have already taken over private water plants, one of them being Long Beach, the town holding the champion record for growth during the last decade. Many others are now considering the acquisition, by virtue of this new act, of the private plants now supplying them with water, while other municipalities are considering the construction of new works.

With these facts in mind, we decided to find out if possible how municipal ownership has resulted for the cities and towns of California, and realizing the advisability of securing our information from the highest authority, we recently addressed an inquiry to the mayors and executive heads of all our cities and towns owning their public utilities, in which inquiry we submitted and requested answers to the following five questions:

1—Has municipal ownership been a success in your town?

2—Has it reduced rates and given better service?

3—Would you advise all cities to try it?

4—What was the principal opposition you had to overcome before securing municipal ownership?

5—What are the chief obstacles that hinder the success of municipal ownership?

In considering questions of such importance as this, it is not advisable to contemplate them from one standpoint alone. Far better is it to learn the weak points and objections also, in order to be better qualified to meet and overcome them in case afterwards they should be encountered. Therefore we have accepted a few articles from several prominent heads of public utility corporations who, we presume, have presented therein the strongest arguments against municipal ownership of the particular character of public utility which they represent. It remains for our readers to draw their own conclusions.

Following these articles, we are running a criticism of Pasadena's Municipal Lighting Plant which appeared in the Los Angeles *Graphic* of June 17th last,

and this is followed by the reply of Mr. C. W. Koiner, the manager of said plant.

These articles will undoubtedly be both interesting and instructive, particularly so to the officials of any municipalities which may have under present consideration this question of public ownership of public utilities. The replies received from the mayors are as follows:



MUNICIPAL OWNERSHIP IN VALLEJO

Municipal ownership of water works has been a complete success in the City of Vallejo, so much of a success in fact that there is a popular demand that municipal ownership be extended to other public utilities. Within the next three months two bonding propositions are to be submitted to the people, one for a municipal electric light plant, and the other for a municipal rock quarry.

The city water works were constructed in 1893-94. Prior to that time the City and Mare Island Navy Yard were supplied by a private corporation. The inadequate service and the poor quality of the water furnished brought on the agitation which culminated in the people voting bonds for a municipal water system.

Municipal ownership has improved the service, and reduced the water rates 50 per cent, and in addition to reducing the water rates has materially reduced the tax rate, the surplus from the water system being used to meet the general expenses of running the city government.

After the success that municipal ownership has met with in Vallejo, I have no hesitancy in advising all our cities to try it.

The principal opposition that we had to overcome at the time the water works agitation was on, was the fear of the people that the municipal project would not produce sufficient revenue to meet the bonded obligations and interest.

The chief obstacles that hinder the success of municipal ownership are too much politics and poor management.

W. J. TORMEY,
Mayor.



Ontario, Cal., Aug. 9, 1911.

Pacific Municipalities, San Francisco, Cal.

GENTLEMEN:—In reply to your request of the 3rd inst. I have to inform you that this

city has had no experience with municipal ownership and I, therefore, can not furnish the article you ask for.

Ontario is now putting in a city water system to be controlled by the municipality, but the lighting is by a corporation which is somewhat on the mutual order, although all citizens are not members.

No opposition was encountered in establishing the new water plant, not even from the company which had been furnishing, for it is primarily a company formed to supply irrigating water and is anxious to withdraw from all obligations to furnish water for domestic purposes.

The bond issue, for supplying the funds for the new system, was carried with a large majority.

Respectfully yours,

GEO. B. SELL.

President Board of Trustees.



Lordsburg, Cal., Aug. 9, 1911.

W. J. Locke, Managing Editor, San Francisco, Cal.

DEAR SIR:—I am unable at the present time to comply with your request for a short article on the subject of "Municipal Ownership." The only enterprise of that sort that this place has on hand is a municipal water system which is at present under construction and will not begin service for about a month. Until we have had some experience with the actual operation of the plant I would not feel competent to offer a public opinion on the subject.

Very truly yours,

ARTHUR DURWARD,

President Board of Trustees.



Office of the Mayor, Sacramento, Cal., Aug. 8, 1911.

Mr. W. J. Locke, Managing Editor *Pacific Municipalities*, San Francisco, Cal.

DEAR SIR:—In answer to your favor of the 3rd instant, I beg to say that Sacramento has always owned and operated its water works, and when we adopted our last charter in 1894, provision was made therein that the city shall always have and control the distribution of water within the city limits. The water used by this city is pumped from the Sacramento river, the largest water course in the state. The water is pure and soft and most desirable for domestic and commercial uses, and is furnished the people at very low price. The

charge being fifty cents per month for small houses, one dollar for medium sized houses, etc. No charge is made to the people for irrigation, and we have free water for sprinkling streets, flushing sewers, public buildings, fire plugs, etc. The net cash revenue from the water works is about \$100,000 and by having free water for irrigation, fire plugs, sewer flushing, public buildings, street sprinkling, etc., we save approximately \$100,000, which makes our net gain \$200,000 yearly. We use 315 gallons daily per capita, which is perhaps twice that used by any other city in the state. From the above it is evident that the municipal water works of this city is a great success.

Very truly yours, M. R. BEARD, Mayor.



MUNICIPAL LIGHTING IN ALAMEDA

Previous to July 1, 1887, the citizens of Alameda purchased electric light from the Jenny Electric Light Company, a private corporation operating under a franchise. On the date above mentioned the City of Alameda took over the plant of this private corporation and it has owned and operated its own light and power plant ever since. While there were some citizens who doubted at first whether municipal ownership would be successful, the people of Alameda are now practically unanimous in indorsing such ownership of the light and power plant.

I can not recall the exact rate per thousand watts charged by the Jenny Company twenty-four years ago, but I can say that municipal ownership has resulted in very much lower rates. We are now charging seven cents per thousand watts for electric light service, with a minimum bill of one dollar per month. For consumption of over ten dollars of current, there is a graduated scale of reductions with a minimum rate of five cents per thousand watts. For power service the minimum rate is three and one-half cents per thousand watts and the maximum is five cents per thousand watts. These rates are considerably lower than those charged in neighboring cities supplied by privately controlled plants.

In establishing our plant we had considerable opposition from corporate influences. Those who were opposed, argued that a public plant would be controlled by politics and that it would be a costly experiment. These objections proved to be groundless. The plant is managed by three business men and is kept on a business basis. Last year the plant showed

net earnings to the amount of \$50,469.87, after meeting all expenses including charges for depreciation, interest on investment and taxes, which the plant would have to meet if it were a private venture. Out of these net earnings the plant provided free lighting for the streets, which would have cost the city \$32,776.25 under private ownership, leaving a surplus of \$17,693.62 which went into extensions and improvements. The total book value of the plant July 1, 1911, was \$275,726.38. The original Jenny plant was purchased for \$40,000, so that the value of the plant today is seven times as much as the original cost twenty-four years ago. With such a showing for municipal ownership, all opposition has ceased.

If I were asked to advise the citizens of any other city with regard to municipal ownership, I could make no stronger endorsement of such ownership than that given in the above figures. However, I would caution them against close economy in dealing with the plant, for such economy will not pay in the end. The great need of the Alameda plant today is a fire-proof building to house its machinery and the City Council is planning to ask the voters to bond the city for \$100,000 for this purpose. If these bonds are voted, not a cent will be levied on property to pay interest and redemption, for the earnings of the plant will take care of the bonds. The ability of the plant to take care of itself in this manner shows how successful municipal ownership is in Alameda.

W. H. NOV, Mayor of Alameda.



Colusa, Cal., Aug. 1911.

Mr. W. J. Locke, Managing Editor *Pacific Municipalities*, San Francisco, Cal.

DEAR SIR:—Municipal ownership here in Colusa has been a great success. Our new Waterworks service is all that can be expected. We have a pressure of 45 pounds on our water-mains, which is increased in case of fire to 125 pounds by two four-stage centrifugal pumps at the station, which has greatly reduced fire insurance rates in our city. And apart from this the town can furnish water much cheaper to its inhabitants than a private concern, and especially the Harley system of fire protection, which we have here, I can highly recommend to cities much larger than Colusa from any standpoint.

While the Board of Town Trustees for the past six years have had an enormous lot of work to perform, it has been ever faithful and

PACIFIC MUNICIPALITIES

unselfish. Election had to be called for a new Charter and then the question of bonding the town had to be voted on by the people, both for a waterworks and sewer system, then our real labor first began, in securing the proper method of application. Our experiences and labors so far have met with success and I heartily recommend Municipal Ownership from every point of view. Yours very truly,

JOHN A. EYBEL, Mayor.



Los Angeles, Cal., Aug. 10, 1911.

Pacific Municipalities, Ninth Floor, Pacific Building, San Francisco.

GENTLEMEN:—About nine years ago Los Angeles acquired the very badly depreciated and inadequate water systems of three companies then supplying water to the inhabitants of the city. Bonds in the sum of \$2,500,000 were issued for the purchase of these plants and the building of an additional reservoir. Since that time the city has increased in population from 120,000 to over 350,000. The water rates have been reduced more than 30% and yet the revenue derived has been sufficient almost completely to rebuild the systems, to provide for extensions to meet the growth of the town and to take care of the interest and sinking fund of the water bonds, and still leave the city a good profit.

During the last fiscal year the Water Department laid 40.50 miles of pipe; built a 40,000,000 gallon reservoir; paid \$141,531.25 to the interest and sinking fund; furnished free for municipal and charitable purposes about \$226,165 worth of water, and had a profit of about \$126,000 besides.

All municipalities should own their public utilities. The principal opposition to municipal ownership will come from those whose money is invested in public utilities. Unquestionably a large measure of the success of our Water Department is due to the honest and capable men who have been at the head of it.

Very truly yours,

GEO. ALEXANDER, Mayor.



Anaheim, Cal., Aug. 15, 1911.

Mr. W. J. Locke, Managing Editor *Pacific Municipalities*, San Francisco, Cal.

DEAR SIR:—Replying to your inquiry of recent date, relative to our experience under municipal ownership of public utilities, will say that Anaheim owns and controls its own

Electric Light and Water plant, run in combination. Same has been a success from the start, giving excellent service, as regards light and power, and the supply of water as to quantity and quality is all that can be desired. Our municipal plant has been the means of keeping rates down to a reasonable figure.

There has been practically no opposition to municipal ownership at any time, and I believe the tendency of every city should be toward owning and controlling its own public utilities.

Respectfully yours, C. O. RUST,

President City Council.



Whittier, Cal., Aug. 15, 1911.

W. J. LOCKE—*Dear Sir:* Your letter asking about the advantages of municipal ownership of public utilities was duly received. I will answer your question in regular order.

First, municipal ownership has been a complete success in Whittier. The city owns its waterworks and sewer. The water plant has paid the city well; there is now a large surplus in the water fund. Our water rate is one dollar monthly per residence for domestic use, or one dollar per 1,200 cubic feet by meter. Irrigation rate, three cents per 100 cubic feet meter rate.

Municipal ownership has reduced the rate and given better service. Would advise all cities to adopt it as any profit goes to the municipality instead of a private corporation. The only opposition we had in getting municipal ownership of the water system was the private company that owned the water system when the city was incorporated; by purchasing their plant that objection was met.

Our sewer system has been a success from the start. While it is not a revenue-making public utility the fees for permit (\$3.00 per tap) helps a good deal toward paying the expenses of the Superintendent, etc.

There is no reason why a city should not own its public utilities rather than allow private corporations to control them if they are run on a strictly business basis.

Respectfully, D. REID,

President Board of Trustees.



Executive Department, Pasadena, Aug. 16, '11.

Pacific Municipalities, Ninth Floor, Pacific Building, San Francisco, Cal.

GENTLEMEN:—In reply to your valued letter of the 3rd inst., I wish to make reply in the

words of C. W. Koiner, the Manager of our Municipal Electric Light Plant:

1. Has municipal ownership been a success in your town?

Ans. Municipal ownership in Pasadena has been considered a great success financially and otherwise. The net revenues from Pasadena's municipal light and power plant has been from 9% to 11% on the total investment. The highest rate charged for electrical energy at the present time is 5 cents per K. W. H.

2. Has it reduced rates and given better service?

Ans. The rates have been reduced from 12½ cents per K. W. H. to a maximum base rate of 5 cents, ranging down as low as 3 cents, and for power from 4 cents to as low as 1½ cents. Rates charged at the time of agitation for municipal ownership was 15 cents, therefore there has been considerable reduction in rates as a result of municipal ownership.

3. Would you advise all our cities to try it?

Ans. We say, "Yes," every municipality should own and operate all public utilities, provided the municipality is capable of conducting its affairs, eliminating all partisan politics from its civic affairs. We will volunteer the assertion that every municipality should be capable of conducting all of its utilities, and being capable it should do it.

4. What was the principal opposition you had to overcome before securing municipal ownership?

Ans. The principal and only opposition has been the private corporation with which the city is competing.

5. What are the chief obstacles that hinder the success of municipal ownership?

Ans. Ignorance of the possibilities of municipal ownership, incompetency in the management of such utilities, partisan politics, lack of a definite plan in establishing and acquiring utilities.

One of the great obstacles to the establishment of municipal ownership is the adverse advertising it receives from the corporations conducting most all utilities in our cities. Misrepresentation and false statements issued by the paid press emanating from these corporations do a great deal to retard municipal ownership.

As above stated, these answers are made by our Manager. I am, however, very familiar with the conditions of our electric light business, and I fully endorse every answer he has made. I wish only to add that Pasadena was

practically forced into the lighting business by the unsatisfactory methods adopted by our local corporation.

Yours respectfully,
WILLIAM THUM, Mayor.



Redwood City, Aug. 16, 1911.

Mr. W. J. Locke, Managing Editor *Pacific Municipalities*, Ninth Floor, Pacific Building, San Francisco.

DEAR SIR:—This is in reply to your request of 3rd inst. for a brief article, stating the experience of Redwood City under municipal ownership.

We own our distributing systems for water and for electric lighting. A year or two ago the water system was supplemented by a reinforced concrete reservoir, placed in the hills on the westerly side of the town, at an elevation of 180 feet. The water is pumped directly into the mains from artesian wells on the easterly side of the town, where the elevation is lowest. We carry in the mains a pressure of nearly 90 pounds per square inch, thus obviating the need of fire engines. The wells from which the town got its supply in early days had to be abandoned a few years ago on account of the area around them becoming thickly inhabited. We now purchase the water from a private pumping company, paying for it 12.5 cents per thousand gallons at the present pressure of 90 pounds per square inch. We sell it to consumers for 30 cents per thousand gallons. The total consumption averages between 150,000 to 200,000 gallons a day. From this amount we make a profit of about \$200 a month besides getting free water for the public parks, sprinkling streets, flushing sewers, fire purposes, etc.

It is apparent that the water rates could be reduced from 30 cents to less than 25 cents per thousand gallons. If the profit that we make on the water were wiped out, we would have to raise an equal amount of money by taxation, from which it might seem that it makes no difference to consumers whether we charge the higher rate for water or an increased general tax rate. This contention, however, is against good public policy, for the reason that the higher water rate favors the taxpayers who own vacant lots and penalizes people who plant lawns and trees.

We also own our street lightning system. About ten years ago the town generated its own electricity, but later entered into a contract with a gas and electric corporation for

lighting the streets, the lighting company having the privilege of using the town system for serving private consumers. That contract having expired, the system has now reverted to the town and is being made over, with a view to inviting bids for furnishing current at our switchboard, the town doing its own distributing of electric current just as it distributes water.

The system of gas service is entirely in the hands of a private corporation.

Answering your specific inquiries, I would say:

1. Municipal ownership, so far as our experience goes, has been a decided success in the business of distribution. I was not a resident of the town during the time when the municipal pumping and electrical generating stations were in operation, but I have been told that the operation of these plants was discontinued on account of misbehavior of the employes and a lack of knowledge of such matters on the part of the town trustees.

2. In the matter of rates, municipal ownership has been profitable, and in the matter of service it has been exceedingly helpful. It is in this matter of service that municipal ownership can be most beneficial. Most of the friction between our citizens and the Gas and Electric Company has come about from the unwillingness of the corporation to make reasonable extensions of its service. No doubt many of the demands made upon the company for extensions are unreasonable, but on the other hand we have had endless complaints of unjustifiable exactions on the part of the Gas and Electric Company.

3. I would advise all communities to own their own distributing systems for water and electricity, and also for gas if feasible. The question of ownership of pumping plants for water and generating plants for electricity could then be settled according to local needs, the community being free to purchase or produce these commodities at will.

4. Your question as to principal sources of opposition to municipal ownership would not apply to Redwood City, because it is a very old town and has always owned its own water and street lighting systems.

5. The chief obstacles that hinder success of the municipal ownership of public utilities are: First, the lack of ready money with which to install the necessary equipments. Second, the difficulty of economical administration. The second difficulty applies particu-

larly to the operation of pumping and generating plants, the maintenance of the distributing plant being less difficult, and in my judgment entirely feasible and desirable.

Yours very truly,

GEO. A. MERRILL,

President of Board of Trustees, Redwood City, Cal.



Riverside, California.

TO WHOM IT MAY CONCERN:—The question of municipal ownership of public utilities will doubtless be a debatable subject for many years to come. I have read many misstatements on both sides of the question and have somewhat carefully investigated a number of the cases named as either failures or successes. In every instance I have found local conditions largely enter into either the success or the failure. Because one city can make a success of an electric light plant or a water plant, it does not necessarily follow that other cities, even those nearby, can make the same or any success in the same business.

The term "local conditions" has a very wide scope, but is the best short term which comprehends all that might be said of the reasons for the success or failure of municipal ownership. In my judgment, any municipal plant to be a success must be a municipal monopoly itself; as an argument for entering into other municipal ownership propositions, it should be a municipal monopoly.

The form of government under which these things are best shown is free from politics, and the men in charge do not change with succeeding administrations, the only test being competency. I believe that in justice to the interests of other people, corporate or otherwise, that any city contemplating ownership of a utility should buy the existing plant, provided it can be procured for what it is worth at that time, and provided also it can be utilized by the community.

Municipal ownership should be frankly stated by those who advocate it in concrete instances, and there should be no disguising the fact that it ultimately means the removal from that community of other plants doing the same line of business, or at least the trend of the future will probably be along these lines. In its electric business, Riverside has found it very expedient and very satisfactory to buy its electricity in bulk from the Edison Electric Company and do the distributing. Our rela-

tions have been pleasant and our financial relations have been as good as any in the business world. It is more than probable that we will continue for an indefinite time to operate as we do, provided we can continue the same arrangements; but the municipal ownership idea is so well grounded with us that there can hardly be conceived conditions under which we would dispose of our municipal lighting plant.

The ownership of water is perhaps the first in importance. Then comes electricity, and then perhaps gas, and not improbably ice. Of late there has been considerable talk about the public ownership of telephones, especially since the installation of more than one system. I have never heard any definite proposition made regarding telephones, but I have heard considerable talk along the line of having the national government in time take hold of both the telephone and telegraph. I look for progress along these lines within a comparatively few years. Whether the municipal ownership idea will spread to other communities will largely depend upon the attitude of the public service corporations themselves. For just as there have been many reasonable solutions of other perplexing propositions between cities and these corporations, so also have there been some very arbitrary rulings that were eminently unjust.

Yours truly,

S. C. EVANS, Mayor.



SANTA BARBARA'S MUNICIPAL WATER SYSTEM

When in the later '80's Santa Barbara began to make a substantial growth it was found that all possibilities of future development must depend absolutely upon the securing of an adequate water supply.

Every line of investigation led to just one conclusion, and that was that the only adequate and permanent supply must be found by driving a tunnel through Santa Ynez Mountain to the river beyond.

When it was found that private capital would not undertake this stupendous task, finally the city, in the year 1904, acquired the necessary right of way and reservoir sites, and began the construction of a tunnel 19,560 feet (nearly four miles) in length, through the mountain to the north of the city to the Santa Ynez River. This tunnel now lacks only one-half mile of completion, and at the present rate of progress will be finished within the next eight months.

The most surprising as well as satisfactory feature of the project, is to the fact that almost from the very start so much water was developed in the tunnel itself, as the work proceeded, that the revenue from the sale of it much more than met the payments on the bonds as they fell due, together with the interest thereon. Hence, although the water bonds now aggregate nearly \$600,000, the tunnel will not cost the taxpayer one penny, but will much more than pay for its own construction.

And this result has been obtained in conjunction with a great reduction in water rates, as well as an astonishing increase in the supply.

The private corporation which had for many years supplied the city with water had at times charged as high as one dollar per thousand gallons, and the supply in the summer-time was always very inadequate. Today we not only have an abundant municipal supply, but the rate has fallen to twenty cents per thousand gallons, with the privilege this summer of using double the quantity of water consumed in the corresponding months of the preceding year, at no additional charge, which makes a possible price of only ten cents per thousand gallons.

But the most important part of the project will follow the completion of the tunnel, when a great storage reservoir will be constructed on the Santa Ynez River to impound the storm water from a drainage basin of 207 square miles, on which there is an annual rainfall estimated to exceed 25 inches.

And this water will be landed at the south portal at an elevation of more than a thousand feet above the city, giving a splendid pressure for the development of hydro-electric power,—the quantity of water to be impounded, and the amount of power to be generated, limited only by the height of the dam to be constructed, and which can be built to any desired height.

Suppose we construct a dam sufficient to develop 3000 horse power of electricity, and suppose this is sold at the rate of \$60 per horse power per year, and we shall have a revenue of \$180,000 per annum. Then suppose the sale of the water amounts to one-half as much more, or \$90,000, and we shall have a grand total of \$270,000 per year, which would be 27 per cent on a valuation of \$1,000,000, and \$1,000,000 will without doubt cover the cost of the entire project, including tunnel, reservoir and power plant.

You may discount this calculation by one-

half, and still there would be a revenue sufficient to pay off the bonds with the interest thereon, and meet all the expenses of the city government besides, so that municipal taxation might be forever abolished, and there would still be money left for building bridges and employing a municipal band.

Thus it will be seen that we have right at our doors a source of wealth that outranks the greatest oil wells of California, or the richest gold mines of Alaska, and it all belongs to the people of Santa Barbara in common as an everlasting heritage.

Municipal ownership of water is certainly a success in Santa Barbara, and with a graduated reduction in taxes, which we should inaugurate the coming year, California will soon have one city without a municipal tax levy.

CLIO L. LLOYD, Mayor.

Monrovia, Cal., Aug. 21, 1911.

Mr. W. J. Locke, Editor *Pacific Municipalities*, Pacific Building, San Francisco, Cal.

DEAR SIR:—You ask my views on municipal ownership. Monrovia has about 5000 inhabitants, and owns its own water system, charging a minimum rate of 50c for 5000 gallons, the cheapest rate I know of in this state. Five years ago when the present Board of Trustees were elected, the system was very crude and not sufficient for the population at that time. We now have an abundant supply, sufficient for a population of 15,000 people, and have as good fire protection as any town in the state; this has been effected by able, intelligent management. Hence, I answer, "municipal ownership in Monrovia" has been a success.

To answer question No. 3, I must first answer question No. 5; it is a hard matter under our legislative enactments, for cities of the fifth and sixth class to secure competent Trustees; as a rule they are honest men and good citizens, but have very little ability, not enough to succeed in their own affairs. The present Board of Trustees for Monrovia are all men of means, having succeeded in their own affairs and thoroughly competent to manage and control corporate business of any magnitude.

Now Mr. Editor, with such a Board of Trustees elected under our legislative enactments or by a commission form of government, my advice to any such city is to own its own water and lighting systems. There is an old saying which is applicable in this case, "If you have a watch to fix, don't take it to a blacksmith"

if you expect intelligent, efficient management of corporate business, get good men who know how. The chief obstacles of municipal ownership is the lack of intelligent, efficient, management.

Yours truly,

W. G. SCARBOROUGH,

Mayor of Monrovia.

Sebastopol, Cal., Aug. 19, 1911.

Regarding municipal ownership of public utilities as viewed from the standpoint of our experience, will say that the Town of Sebastopol owns and controls its own water works, and finds the operation of same a success both from the standpoint of the consumer and the town, as shown by our report as filed by the Superintendent for the past year, in which we find that notwithstanding the fact that our rates to the consumer are less than those of private owned systems we have been enabled to make quite a number of costly additions to our supply, and these have all been paid out of the revenues from the sale of water, also our streets are sprinkled and no account is taken of water used.

Would certainly recommend to any city or town that is anticipating increasing their present supply of water to, if possible, own and control their own system.

We find the main opposition to municipal ownership comes from the large property owners, who set up the claim that the users of water should pay the bills, we have in a measure overcome this by charging for water in proportion to volume consumed.

There is at this time some agitation in favor of the Town of Sebastopol acquiring a municipal lighting plant, this if only in its incipency, and it will probably be some time before any definite steps are taken.

J. P. KELLY,

President Board of Trustees.

San Bernardino, Aug. 22, 1911.

DEAR SIR:—In reply to your request in regard to the water works of San Bernardino, I would say, gross cost of plant, \$500,000; gross income, \$60,000; cost of maintenance, \$18,000. I herewith enclose annual report of Water Commission which will give you the most accurate data that we have.

Yours truly,

J. S. BRIGHT,

Mayor of San Bernardino.

PASADENA'S MUNICIPAL LIGHTING PLANT

FROM *The Los Angeles Graphic*, JUNE 17, 1911.

Deluded by the specious statements made by the management of the Pasadena municipal electric plant, to the effect that in the year just past, ten per cent was earned on the investment, at a maximum rate of five cents a kilowat-hour, other cities, arguing from this roseate report, have sought to reduce their contract rate with privately owned electric companies, to a point that will not yield returns sufficient to pay interest on the bonded indebtedness, leaving dividends for stockholders altogether out of the question.

Realizing that such fallacious figures emanating from the Pasadena municipal plant office might work great harm to legitimate interests, if allowed to go unchallenged, since they are obviously inconsistent with known facts, it was decided by a select taxpayers' committee, in justice to all concerned, to employ the services of the most competent, impartial and trustworthy accountants known, to investigate the books of the Pasadena municipal plant, with a view to ascertaining the truth or falsity of the statements disseminated by the management. After considering the relative merits of several reputable firms, the commission was given to Messrs. Price, Waterhouse and Company of New York, Chicago and San Francisco, to conduct the examination.

What the researches of this reputable firm of accountants disclosed makes interesting reading, but before reviewing their findings, it is well to glance at the recent report of General Manager Koiner of the Pasadena municipal plant. From this glowing statement it is revealed that the total earnings for six months, July 1st, 1910, to January 1st, 1911, were \$48,079.31, and the expenditures \$24,512.35. Charging off \$6,243.78 interest on bonds for six months and \$4,062.48 allowance for retiring bonds in that same period, leaves an apparent surplus of \$13,260.70 to be applied on depreciation or construction—certainly an optimistic showing.

But this is hardly a frank exposition of the facts. With the average monthly total receipts from all sources \$8,000—which is an excess of the summary of the department reports—and averaging the monthly expenditures at \$4,125, there remains a surplus of \$3,875 for each of the six months operated. Now, according to Messrs. Price, Waterhouse & Company, the excess of earnings over expenses from July 1 to October 1 was \$13,271.04, but if the municipal lighting department were obliged to account to the taxpayers for full depreciation, interest and ordinary taxes on property investment—all of which must be included by a private company and should be considered in order to arrive at a just comparison—the following items would have to be charged off:

Depreciation, $5\frac{1}{2}\%$, 4 months	\$ 7,629.62
Interest on Investment: $4\frac{1}{2}\%$ on \$50,000, 4% on remainder, 4 months	5,844.69
Taxes—Pasadena, State and County, 4 months	1,946.22
Rent of Office, 4 months	300.00
	<hr/>
Total	\$15,720.53
Deduct excess of earnings as given above	13,271.40
	<hr/>
Deficit	\$ 2,449.13

But this is not all. Messrs. Price, Waterhouse & Company direct the attention to the abnormally small charge for maintenance apportioned by the municipal lighting department, based on comparisons made with a number of private and municipal plants serving a similar sized clientele elsewhere. The Pasadena plant in the last two years has undercharged upward of \$7,000 for maintenance on the basis of kilowatt-hours and \$11,250 on the gross earnings basis. Pursuing this interesting comparison, it is disclosed that while the percentage of maintenance to gross earnings in the companies for the periods named was 15.876 per cent, the Pasadena percentage of maintenance to gross earnings in 1908 and 1910 was placed at 3.2 per cent, so abnormally low as compared with the older and more conservatively conducted plants as to create a reasonable suspicion that a grave error has been made by the Pasadena management in computing this fixed charge.

In privately conducted companies it is the usual practice to make a monthly charge to expenses for the purpose of establishing a casualty fund to take care of possible injuries to employees, but no charge has been made to operating expenses thus far on this account, although there have been two deaths and one serious injury for which the Pasadena municipal plant was responsible. In one case the employee was without relatives, hence the city escaped; in the second instance \$500.00 was paid and charged to general fund department of the city accounts, and not to the expense of the department; suit for \$25,000 has been filed by the widow, and while no judgment has been rendered against the city there still remains the higher court to be heard from on appeal. The third case is pending.

Another discrepancy is in the matter of insurance. Less than \$100 is charged off to boiler insurance, yet in private companies having an investment of \$350,000, insurance on \$150,000 would be carried at an annual cost of \$1,125.

Take the report covering the disconnections. More than 600 were made in the period to October 31st, 1910, by the municipal plant. The meter is removed in each instance, but the connection remains intact, in case the consumer elects to return. On the basis of an average of \$10 a connection, there is an idle investment of \$6,000, if the customers do not return. Here is a large waste which does not show in the report.

In computing the earnings of the Pasadena lighting department there appears a credit of \$33,311.24 for street lighting, which, of course, is charged to the taxpayers. This item represents about 44½ per cent of all the earnings. Figured on the basis of 30,000 population, it gives a cost of \$1.11 per capita on this account, a percentage considerably higher than other cities on the coast are obligated. Moreover Pasadena charges a flat rate of 8 cents for its street lamps. As these are tungsten lights and effect a saving of fully 40 per cent as compared with the lamps for which the five-cent rate is made, it will be seen that the price made to taxpayers in respect to street lighting is disingenuous, to use a mild term, and hardly warranted by the conditions. It is understood that the city declined a proposition by which it could have furnished the street lighting for an equal number of lamps, for \$25,000 the conditions being practically the same as at present, for which service \$33,311 is credited on the books to earnings. In addition, the private company offered to furnish such other lights that, if installed by the municipal department, would bring the normal charge—or earnings, as this item is termed—to \$38,000, a difference of \$13,000, which the taxpayers are losing.

Thus far, the plant has cost the taxpayers about \$450,000, for which no provision has been made for depreciation. On the basis of $5\frac{1}{2}$ per cent per annum, the rate used by Professor Cory in his report to the mayor and city council, and which is the average rate adopted by electric corporations, the depreciation to date is about \$44,000. A surplus existed, according to the books of October 31, 1910, of \$52,645, but with the depreciation deducted—which has not been done on the department books—the "earnings" shrink to \$8,645.

REPLY BY MR. C. W. KOINER

Pasadena, Cal., Aug. 17, 1911.

League of California Municipalities,
Ninth Floor, Pacific Building, San Francisco, Cal.

GENTLEMEN:—I have secured a copy of the *Graphic* of June 17th and note the criticism of Pasadena's Municipal Lighting Plant. I submit herewith the report for the period referred to. The report is made up from the books of this department which are always open to the inspection of the public.

Concerning the statement that a select taxpayers' committee had investigated the figures reported by the management of the Municipal Lighting Department, the writer was not aware that there was ever any such committee made up for this purpose. It no doubt consisted of some of the officials of the Southern California Edison Company, who live in Pasadena,—one of these self-appointed committees that we sometimes hear of, for the explicit purpose of picking to pieces any report that might be made on the property referred to.

Relative to the accountant of Messrs. Price, Waterhouse & Company, the writer has extended courtesies to accountants and strangers on different occasions, whom we supposed were sent to make examinations in the interest of the Southern California Edison Company, with whom we are in competition. The parties making such inspections

never reveal their true identity, hence we were not aware that the above firm had made any examination. These inspections are usually to serve the purpose of the above company in "garb-ling" figures.

Assuming the average investment for the six months referred to as being \$450,000 according to the criticism, the proper charge against this investment would be 5% covering depreciation and 4% interest on bonds, as all of our bonds are at 4% with the exception of one issue of \$50,000, therefore 9% on the total investment will be ample for these charges. For the six months this would amount to \$20,250; the net earnings being \$23,566.96, a surplus of \$3,316.96 would be left for the period. Those who are not willing to accept 5% for depreciation may figure it on the basis of $5\frac{1}{2}$ % and still there is a surplus remaining.

The criticism of the low cost of maintenance is not well taken. In fact, it is a credit to the department to show a low maintenance cost when it is considered that the plant is kept up in first-class condition in every particular.

Relative to insurance, all municipalities can better afford to carry their own insurance. Pasadena is larger than some insurance companies, hence is able to carry her own insurance. Yet with all this we have carried some boiler insurance, which we propose to drop at the

expiration of the policy and carry our own insurance.

The criticism concerning the earnings from street lighting is a very poor one. The rates for street lighting in Pasadena are about 23% less than formerly paid the Southern California Edison Company. The price received for cluster lighting is three cents per K. W. H.; for 40 candle power Tungsten lamps, including maintenance, \$12.00 per annum each; full 6.6 ampere arcs, \$60.00 per annum. These prices are no more than those charged by neighboring cities and are a great deal less than those charged in many cities. There may be an exception in two cases of nearby cities where there has been strong competition in street lighting. The number of lights on the streets of Pasadena is about four times what it was before the city installed its municipal plant.

The proper basis of comparing the cost of lighting in the various cities is not the cost per capita but the cost per unit. That is, the cost of an equal candle power lamp or the cost per K. W. H. One city may have its streets well illuminated as in the case of Pasadena, while others, dealing with corporations, can not secure the lighting on the streets or the extensions of the street lighting system without purchasing these extensions and then allowing the companies to own them. With municipal ownership a city is free from being held up in this connection, both for the extensions of commercial lighting and street lighting.

In addition to the plant sustaining itself from its receipts as shown, the chief benefit and the greatest success of Pasadena's Municipal Lighting Plant is the great saving by reason of the difference in rates charged at this time, namely: 5 cents to 3 cents for light and from 4 cents to 1½ cents for power, and

the rates charged before the city entered the field, namely: 12½ cents with 10% discount for cash. This difference results in a saving this year, on the basis of the total amount of business in the City of Pasadena, of not less than \$125,000. That is to say, this amount of money is kept in the pockets of the people and is in addition to the showing already made by the plant. Can any one presume to make a criticism as in the article referred to without recognizing this tremendous dividend? The people could afford to tax themselves to pay the entire charges against the plant and they would still have left eighty odd thousand dollars.

The total gross earnings of Pasadena's Municipal Lighting Department for the year ending June 30, 1911, was.....	\$111,211.10
Expenditures.....	56,392.21
Leaving a balance of.....	54,818.89

This balance is 11.3% on the total investment in the plant June 30, 1911, which was \$484,750.93. Allowing 5% for depreciation and 4% interest, making a total of 9% on the total investment, would amount to \$43,627.58, leaving a surplus of \$11,191.31. In addition to this showing the tremendous saving by reason of the difference in rates satisfies the people of Pasadena with their investment in their municipal lighting plant. They are satisfied in view of the great fight that we have had with the corporation and the success attained during the time that the plant has been accumulating its load. Very few private corporations can show as good results at a time when they are gathering their business and having strong competition.

The total amount of bonded indebtedness of the plant at the present time is only \$298,125, while the value of the property is \$484,750.93.

Such articles of criticism on municipal enterprises can be looked for from

time to time, and especially when a municipal enterprise is making good. When a municipal enterprise is not making good, no attention is paid to it because it will fail of its own accord. The better the results and the more pronounced the success, greater will be the criticism, especially of municipally owned and operated light and power

plants. The writer desires only to present the truth in regard to the situation in order that there may be no misunderstanding on the part of people who may read the criticism and not know that the article referred to was published for the purpose of misrepresenting the facts.

Yours very truly,

C. W. KOENER, General Manager.



THE HOUSE FLY—DISEASE CARRIER

The chief of the United States Bureau of Entomology has extended his work against insect pests by this volume on the common house fly. Literature on the disease-carrying possibilities of the fly has been spread broadcast throughout most of the civilized world, but this book is the first attempt to put complete information on the subject into readable and convenient form.

It is the story of the so-called "typhoid fly," a name which has been objected to on the ground that the house fly is not wholly responsible for the spread of typhoid. The name, however, seems to us wisely chosen since the insect does spread the disease if it has access to infected material, and since the name stirs us as no other would to fight the fly.

Every point is made applicable to the protection of human life from the danger and nuisance of flies.

"If an adult female fly can be destroyed before she lays her eggs we will have killed not only the actual fly but 120 to 600 potential flies due in a very short time, and if this female fly can be caught in the early spring we will have apparently saved the world from almost a calamity."

HOW TO FIGHT THE FLY

See that there is an ordinance in your town requiring all horse manure to be kept in closed bins and to be disposed of periodically in such a manner as to prevent the breeding of flies. See also, that there is an ordinance requiring house garbage to be kept in closed cans.

These ordinances are not oppressive or burdensome and mean the saving of human life. Flies and mosquitos must go.



TRADE NOTES

The California Corrugated Culvert Co. have moved into their new plant, which they claim is the finest of its kind in the world. They occupy a two-storied building 50x250 and it is fitted up with the most modern machinery. The growth of their business is remarkable, the increase in output since starting in 1908 being as follows:

1908	9742 feet
1909	41072 feet
1910	98795 feet

Up to the present in 1911 over 100,000 feet.

This remarkable increase in demand speaks volumes for the merit and efficiency of the goods.

Glendale	2746	no	25c	yes	37	7.00	254Tungs	40-60	80.00	1.15am	5	out	.10	1.50	no limit
Grass Valley	1520	yes	10c	no	5c		35 Tungs	25-50	\$1&2	all n't	"	"	.08	2.50	"
Gridley	987	yes	10c	yes			186	32	free	all n't	none		.10	1.50	
Healdsburg	2011	yes	10 ³ /3c	yes		20.00	75	32	.70	all n't			.10	1.50up	
Hemet	992	no	\$1.00	no			18 Tungs	25	conc't	" "			.10	2.50 "	
Hermosa Beach	679	no	25c	no			26	60	\$5e'ch	12 mid	none		.08	2.00	
Hollister	2308	no	50c	no	.70		16	10.00		all n't	1/2 mo			1.50up	
Huntington Park	875	no	10c	no	.35		0		1.00	all n't	" "			2.00 "	
Imperial	1257	yes	26 ² /3c	no			110	16						1.50up	
Jackson	2035	no		no										2.00 "	
Lakeport	870	yes	75c	no			50	32	1.00	all n't			.10	1.50up	
Lincoln	1402	yes		no			15	48	2.50				.12	1.25	
Lindsay	1814	yes	30c	no			114	32	1.25	1 am			6-10	2.00up	
Livermore	2030	no	20c	no	\$2		61 Tungs	10-32	2.00	all n't	no		.06	1.50 "	
Lodi	2697	yes	15c	yes	\$2		46	42-32	90.00	" "			.15	.75 "	
Lompoc	1482	yes	inc.	no			282	16	meter	" "			.12		
Long Beach	17809	yes	inc.	no	310	5.00	355	16-32		12 mid			.10	1.25up	
Lordsburg	954	yes	314 c	no	3332	5.00up	5055	vary	4-7 kw	vary	yes		.07	2.50 "	
Los Angeles	319198	yes	9c	no	10 m.		0						.10	1.50 "	
Los Angeles	745	no	25c	no	\$5 yr.		26	16	1.00	12 mid			.10	1.50 "	
Los Banos	2232	no	15c	no			0							1.50 "	
Los Gatos	983	no	inc.	no			0							1.50 "	
Loyalton	3102	no	inc.	no			114		1.10	all n't	no		.10		
Marinez	2115	no	50c	no	2.50		32		.50	" "	yes		.10		
Monrovia	3576	yes	10c	no	3.00		237	16	.80	" "			.10	1.25up	
Monterey	1923	no	30c	no	.25		35	30		vary	no		.10		
Mountain View	1161	yes	15c	no		5.00up	1	32	1.00	" "			.10		
Napa	5791	no	10c	no	1.50up		66	60	2.00	all n't			.10	1.00up	
National City	1733	no	25c	no	.75		0		4.73				.10	1.75 "	
Nevada City	2689	yes		no		7.00	140	25	1.30		yes		.15	1.50	
Newport beach	445	yes	10c	no			33 Tungs	40	133.00	12 mid			.12	2.00	
Oakdale	1035	no		no			— Tungs	32	1.00	all n't			.09		
Oakland	150171	no		no	1.270	6.00	3600	40	.80	" "			.11	1.00up	
Oakland	1274	yes	13 ³ /3c	no	82	3.00	11	32	1.00	" "	5		.10		
Orange	2920	yes	10c	no			50	16		" "			.10	1.75	
Oranville	3859	no	20c	no	\$100	7.00	115	32	1.10	" "			.08	1.50up	
Oxnard	2555	no	10c	no			140			12 mid				1.50up	
Pacific Grove	2384	no	30c	no	25	8.00	2	32	3.50	all n't	no		.07 ¹ / ₂	1.50 "	
Palo Alto	4186	yes	20c	yes	0		300Tungs	10-60	4-4.9c	vary			.07 ¹ / ₂	1.50 "	
Pasadena	30291	no		yes	307		1466		2.50	all n't			.09	3.5 kw	
Piedmont	1719	no	35c	vary	no	6.50	19 Tungs	80	2.50	" "	no		8-10		
Petaluma	5880	no	12 ¹ /2c	5.00	59	7.12	100	16	53.00	" "			.10	2.00	
Pittsburg	2372	no	25c	1.50	no	0	42	32	2.00				.10		
Placerville	1114	no	20c	none	0		77	16	1.00	all n't	no		.08		
Pleasanton	1251	yes	10c	no							yes			1.25up	
Point Arena	498	no	inc.	no			17	16	1.50		yes		.10	1.00	
Pontona	10207	no	22 1-5c	.25	54	5.00	1339	16	.50		yes				

CITY OR TOWN

CITY OR TOWN	Population	Have a Municipal Water Plant	Water Rate for Family of Five	Each Additional person	Lawns per sq. yard	Meter Rates per M. gals.	Hydrant Rates per mo.	Have a Municipal Light Plant	How Many Arc Lights?	Mo. Charge for Arc Lights	Any Incandescent Lights?	What Candle-power?	Monthly Charge	How Late do Lights Burn?	How many n'ts out for moonlight?	Price of Electricity to Private Consumers	Telephone rates	How many switches allowed?
Red Bluff	3530	no	\$1.00	25c	50 100 sq. y.	25c	none	no	40	4.00	118	16	.20	all n't	no	.150	none	
Redlands	10449	no	5 rms 2.40		4-5c	25c		no	21	4.50	1200	16	.57	" "	"	.10 2.00 up		
Redondo Beach	2935	no	\$2.00		10-11c	17 1/2c	none	no	44	5.00	117	16	.55	" "	3	.10 1.00 "		
Redwood City	2412	yes	meters			30c		no	58	4.50	19 Tungs	250-100	1.25-90	1.30am	yes	8-10 1.50 "		
Rio Vista	884	yes	\$1.50	10c		15 to 35c	3.00	no	13	7.50	7 Tng	32	1.50	all n't	yes	.10 1.25 "	no limit	
Riverside	15212	no	.90c	10c	1/2c	40c		yes	58	1 1/2 kw	2038 Tng	vary	1 1/2 kw	all n't	no	.09 1.25 "	" "	
Roseville	2608	no	\$2.00	inc.	inc.	50c		no	6		74 Tungs	25-32	1.00	" "	"	.10 1.50 "	" "	
Ross	556	no	\$1.00	15c	1/2c			no	0		139	16	4-9 kw	" "	"	.10 2.50 "	" "	
Sacramento	41696	yes	7 rms 1.00	inc.	inc.			no	612	3.73	0			" "	no			
San Bernardino	12779	yes	\$1 to 1.50	inc.	8 to 13 1/2c			no	157	7.00	3 Tungs			12 mid	"	.12 1.50		
San Bernardino	2945	no	75c 3 per.	5c	10 to 75c		\$5 yr	no	26	5.00	100 clustr	32	5.00	all n't	yes	.12 1.75 "		
San Diego	39578	part	\$1.00		1/2c	10c	.50	no	358	3.50	784	40w	.60	1 am	"	4-10 1.50 "		
San Jose	28946	no	5 rms 60c	10c min	1/2c	25c	2.50	no	15	5.00	84 Tungs	80	2.00	" "	yes	.09 1.25 "	no limit	
San Francisco	116912	no				13 to 30c		no						" "	no	.13 1.5 1.50	" "	
San Leandro	3171	no		10c	1/2c			no						" "	"	.08 1.50 "	" "	
San Luis Obispo	5157	yes	.95c	inc.	4c	10 1/2c		no	20	6.00	500	16	.55	2 am	yes	.10 1.50 "		
Santa Ana	8429	yes	\$1.00		inc.	20c		no	180	5.50	42	16	.75	all n't	"	4-10		
Santa Barbara	11659	yes	\$1.00 min	10c	1/2c	10 to 20c		yes	66	4.00	330	16		1 am	"			
Santa Clara	4348	yes	\$1.00		1/2c	10c		no	100	4.50	400	32	1.00	all n't	yes	.07 2.50		
Santa Cruz	11146	yes	.75c			20c		no	132	5.00	500	16	meter		"	.10 1.75		
Santa Monica	7847	no	1.25 4 per	10c	5/8c	7c	\$5 yr	no	70	8.00	60	32	109.50	12 mid	no	.12 1.50		
Santa Paula	2216	no	\$2.00	25c	meters	50c		no	25		53	32	1.50	all n't	"	.10 3.25		
Sausalito	2383	yes	\$1.50			20c		no			50	32	2.00	" "	"	.09 1.25 "	no limit	
Sebastopol	1233	yes	50c min		50c-75c	5 1/2c		no	7	5.00	42	32	1.40	all n't	yes	.12		
Selma	1850	no	\$1.15	25c		10c	.50-\$1	no	457	4.80	0		.065 kw	" "	yes	.07 2.00 "	vary	
Sonoma	957	no	\$1 to 2.00		1/2c	25c	2.29	no	12		50				"	.065 up		
Stockton	23253	no	80c	10c	1/2c			no	0		40	32	.37 1/2	all n't	"	.15 1.75		
St. Helena	1603	no	\$1.00	10c	1c			no	7	7.50	39 Tungs	75	2.50	all n't	"	.10 1.25 "	no limit	
Suisun	639	yes	\$1.55	15c				no	0		yes	32	.50	all n't	"	.13 1.50 "	no limit	
Suisunville	688	no	\$1.50					no	143	6.50 up	no		1.35	vary	yes	.08 1.75	" "	
Telama	221	no			\$1 per lot			no	0		40	32	.37 1/2	all n't	yes	.12		
Tracy	377	not fixed			none			no			yes	32	13.00	" "	no	.07 1.50	1	
Tulare	2758	no	\$1.50	25c	50 or 25 \$50			no	7	7.50	41 Tungs	75	2.50	all n't	"	.10		
Upland	2384	no	\$1.00 min					no	0		yes	32	.50	all n't	"	.13 1.50 "	no limit	
Vacaville	1187	no	\$1.50		1c	50c		no	0		80	32	1.35	all n't	"	.08 1.75	" "	
Vallejo	11340	yes	5 rms 75c		free	20c		no	143	6.50 up	no	vary	.58 1/2	vary	yes	.12		
Visalia	4550	no	\$1.50	inc.	1/2c	25c		no	49	4.00	6	vary	.58 1/2	all n't	no	.07 1.50		
Watsonville	4446	no	\$1.00	10c	4c			no	18	7.00	280	16	.58 1/2	" "	"	.10 1.50		
Wheatland	481	yes	\$20 year	inc.	inc.	none		no	26	5.00	276 Tungs	42	1.00	" "	yes	.10 1.50 "	no limit	
Whittier	4550	yes	\$1.00	inc.	inc.	4c	\$50	no	17	5.00	27	32	1.00	" "	no	1.00		
Willits	1153	no	\$1.15 up	20c	1/2c			no	4	1.00	27	32	1.00	" "	"	.10 1.50 "	no limit	
Yreka	1134	yes	\$1.00	10c	1/2c	20c		no	11	meter	16	32	1.1 3/4 kw	" "	"	.10 1.50 "	no limit	

INCREASING TELEPHONE COSTS AS EXCHANGE GROWS

BY B. C. CARROLL

That unit cost becomes less as the volume of business increases is an accepted principle. Prices of commodities ordinarily decrease in varying proportions dependent upon the extent of transactions.

But it has been noticed that charges for telephone service are higher in larger exchanges than in smaller ones, and a natural query follows as to why the whole-sale principle obtaining in other lines does not apply to the telephone business.

The subject may be considered from the standpoint of plant investment, maintenance and operating costs.

In a small exchange the switchboard is of simple construction. It practically requires no expert maintenance. No outside underground or cable construction is involved. But as the exchange grows these conditions change and conduits, power plants, multiple switchboards and expert attention become necessary. These items all increase the per station investment, and while in a brief article it is not possible to investigate each unit, a consideration of the switchboard equipment will be illustrative of the situation. A switchboard for an exchange of 300 lines or less can be purchased for less than \$3.00 per line. One equipped for 10,000 lines will cost about \$25.00 per line. This shows that in this one item this cost in a large exchange is ten times greater than in a small exchange. Every line added to a telephone system requires additional central office equipment for every other line in the exchange, so that the new line may be connected to any one of the existing lines. Apparatus has to be added to handle the business originating on the new line and also for that coming from each of the old lines to the new.

An enlarged exchange means an enlarged area covered and therefore, added length to subscribers' lines. It means the replacing of light pole lines by heavier ones, the substitution of copper for iron wires and later the expensive underground conduit. It involves greater lengths of interior wiring and more skilled workmanship. Statistics recently kept by a telephone company show that the average length of wire for a subscriber in one of its small exchanges was less than 1.2 miles while in an exchange of 10,000 the average was 3.4 miles of wire.

The cost of maintenance per station increases as the exchange grows. The plant is more intricate, requiring skilled supervision and experienced employees. The average length of wires is longer, thereby increasing the chances of trouble and involving more time in their correction. Changes are constantly necessary to meet municipal improvements. Disturbances of cable and conduit construction are more frequent on account of the operations of others. Deterioration, visible and invisible, is going on every moment, and as the investment becomes larger per station, the amount set aside for replacement must increase in proportion.

The cost per station of furnishing service increases with a growing exchange. Every connection means an expense to a telephone company and it has been clearly demonstrated that the average number of calls per telephone increases with the opportunities presented for calling. The Rochester (N. Y.) Telephone Company in explaining a recent raise in rates, stated that while its exchange was at the 4000

mark, there was an average of 6 calls per day per telephone; that now with 10,000 telephones there is an average of 14 daily calls per telephone. Experience has shown that in an exchange of approximately 500 telephones, one operator can take care of 140 telephones, while in an exchange of 5000 lines one operator is required for about every 80 subscribers. These figures may vary with conditions and classes of service, but it is a matter of absolute demonstration in telephone traffic conditions that the number of operators required increases in a much higher ratio than the number of subscribers. In addition, chief operators, assistants, monitors, supervisors and other non-productive labor have to be added to the operating forces as the exchange grows.

In the largest cities there are many sub-exchanges. This means a complicated and expensive system of intercommunication between these different branches. But a small porportion of calls is completed within a single exchange and the large majority of calls has to be handled twice. It can easily be seen how the investment and operating cost is increased under these conditions.

The growing exchange demands more expensive supervision, greater engineering talent and mechanical skill. The items of taxes, rent, light and heat are proportionately greater in the larger cities. There is a greater investment set aside for municipal uses in the way of cable and conduit space. Higher wages and shorter hours naturally follow in larger cities.

Careful inventories are taken at times of telephone exchanges, varying in size, and the fact of an increased station cost is inevitably proven thereby. No one will dispute the fact that the value of service to each subscriber increases in direct proportion to the total increase of subscribers, and it may be fair for the public to remember that as that value increases a greater expense per station in practically every item making up the costs of giving the service, has to be met by a telephone company.

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SOME SUGGESTIONS OF IMPROVING THE STANDARD MUNICIPAL WORKS

BY F. C. ROBERTS

To the present development of the stable resources of the central sections of this State, the larger centers owe an abundant increase in business activity.

It may be conservatively assumed, taking into account the present enormous undeveloped and sparsely settled areas of the San Joaquin and Sacramento Valleys and the progress made during the past 20 years, the present rail and water facilities and abundantly cheap power, that the progress during the next decade (granted legitimate encouragement and rational administration) will surpass any previous State records.

What a fundamental element of business conditions and expansion in San Francisco and other large centers the Valley sections of California form, and how important to the trade conditions of those centers and the State that the legitimate development of those areas be encouraged. Contrast the effort and enormous expenditures (Governmental and private) which have been made during the past few years by the British Government in an endeavor to develop the agricultural resources of the South African plateau, with its semi-tropical climate, its lack of rail facilities, and a market no less than 7000 miles away, to California with climatic, water and agricultural conditions, rail facilities and power developments, unsurpassed in any other part of the world.

Can we justly lay claim to the progressive spirit that foreign countries are loath to give us credit?

The chief considerations of interest to the desirable, stable and permanent home-seeking investor, granted other

things are favorable, are health conditions, educational facilities, modern comforts and conveniences, and an assurance that the cost of living in the community in which he contemplates residence is reasonable and compatible with its advantages.

For that reason it would seem to be the policy of every town enjoying contiguous agricultural or other possibilities to promote municipal improvements, and the duty of the State Government to encourage and protect investments in the same.

The foregoing observations are inspired by the knowledge that the smaller towns seldom have the facility or opportunity for observing the most economic and modern methods of controlling and anticipating the needs of the community, for the expenditures involved. The result is extravagant expenditures without adequate returns.

The cautious investor will examine the financial conditions and the general aspect of stability of a community before investing, and should he find a large bonded indebtedness from which adequate results have not been obtained he will fight shy of such a locality. Such unwise expenditures are often caused by the tendency of the smaller municipalities blindly following the policies of their larger neighboring cities, as it is often customary when towns are contemplating improvements to send a committee to their sister cities to collect ideas and advice.

The importance of these questions to the taxpayer and the State itself and the enormous expenditures which are

annually being made on public improvements may be emphasized by the statement that there were in 1890, 196 incorporated cities and towns in this State with a population of 1,619,458 having authority to issue bonds for public improvement amounting to many millions of dollars.

The law on the subject of controlling municipal expenditures is well conceived but the execution and unrestrained system of carrying the same into effect is decidedly bad. It seems to the writer that since the individual communities are in a large measure subservient to the State law it is of importance that the State should place at the disposal of the smaller communities an efficient and properly qualified engineer to whom such municipalities could with confidence refer their plans of expenditure.

For the general good of the public the State law might be amended to the extent of issuing certificates of qualification, experience and responsibility (after favorable public examination) to engineers who solicited business involving municipal expenditures, as is practiced with success in other countries.

In order to make this system effectively operative the same qualifications and conditions should be exacted of any contractor or contracting engineer presuming to figure upon and undertake the construction of such work.

The excessive expenditures and economic failure of many municipal undertakings are in a large measure due to the lack of control of conditions as set forth above.

Water for domestic and fire service, and sanitary plants are integral parts of one another and should belong to and be under the supervision of the municipal government, only perhaps in exceptional cases.

In making remarks on the inadequacy of the system, and those which follow on the inefficient municipal water plants for which bonds have been voted during the past few years by the towns in Central California, the writer has been prompted in the capacity of contracting engineer by the uniformly bad and oftentimes unique specifications and plans offered by such communities and upon which bids have been asked and accepted.

During the past 2½ years the writer has erected every municipal water plant of importance in Central California, and it is a fact that in every case, with one exception, he has been called upon in an engineering capacity to entirely re-design and re-arrange such plants within the financial limits, that economic control and efficiency might be maintained.

Changes are expensive in both time and money and it is not always possible to obtain the best results when attempting to fit new units to existing ones, especially where the requirements have not been intelligently anticipated.

The fundamental elements to be considered in designing a water plant for domestic and high pressure fire service, anticipating the future within reasonable limits, are:

Sources of water supply.

Purity of water.

Average daily consumption for all purposes.

Storage capacity.

Pressure requirements.

The one exception, as noted above, in which the contract was awarded and the original specifications were insisted upon involved the City of Modesto and it will be interesting to briefly discuss the same, not, however, with an idea of casting any reflections, but with an object perhaps of helping to avoid a repeti-

tion and as a striking illustration of the valuable assistance and influence the creation of a State Engineer, placed exclusively at the disposal of municipalities, could render when combined with the strict qualifications of those directly concerned in the work.

The City of Modesto has according to the latest census a population of 4,034 people. This, however, could perhaps be increased by 500 when taking into account the suburban residents under control of the present water pipe system.

The average daily consumption of water per capita, for all purposes, for 12 months, as nearly as can be ascertained in Modesto is 125 gallons, whereas during the summer months, June to September, it is at least three times this figure.

The water storage provided consists of 3 wooden tanks with a combined capacity of 75,000 gallons erected 60 ft. above the general ground elevation. There are roughly 12 miles of street mains ranging in diameter from 12" to 2".

The plant recently installed by the writer at the central station consisted of two single-stage horizontal turbine pump units (one to be used as an auxiliary) each unit designed for a capacity of 450 G. P. M. against a total head (including suction) of 200 ft., and 800 G. P. M. against a total head of 135 ft. These units were direct connected at one end to a 50 H. P., 440 Volt, 1800 R. M. P. Induction Motor, and at the other end as a source of auxiliary power to a horizontal steam turbine, non-condensing, 50 H. P., 1800 R. P. M., designed for a maximum steam pressure of 80 lbs. per square inch.

This plant was intended as the main source of domestic water supply and for fire protection when occasion demanded.

To attempt to obtain economic flexibility such as called for, with a turbine pump is decidedly bad practice, while

the design and capacity of the pumps for either service were entirely inadequate. The same remarks may be more strongly emphasized in connection with the steam turbines, which were entirely unnecessary considering the very continuous, efficient and number of sources of power furnished by the Sierra and San Francisco Power Company who distribute power in the city; furthermore, in order to obtain any insurance credits for steam auxiliary from the National Board of Fire Underwriters they would insist upon the installation of proper boilers and request that 40 lbs. of steam be maintained during 24 hours.

A second pumping unit was installed in another section of the city consisting of a vertical 3-stage deep well turbine, designed for a capacity of 600 G. P. M., against a total head of 135 ft., direct connected to a vertical 50 H. P., 1800 R. P. M. Induction Motor. This plant has never been successfully operated because an attempt was made to make the well fit the pump, without knowing the water conditions.

A third unit was installed in another part of town, distant about 1½ miles, consisting of a horizontal single-stage turbine pump designed for a capacity of 600 G. P. M., against a total head of 135 ft., direct connected to a 40 H. P. Induction Motor, 1800 R. P. M.

These last mentioned units were intended to be used as "boosters" to the main pumping station, that is to say when the pump at the main station had reached its maximum capacity during the hours of largest demand it was intended to maintain the pressure with the "boosters". This plan, however, had not taken into account the frictional losses in pipe, the relative elevation of pumps nor the water conditions in the wells. As a matter of fact the pumps at the main station were submerged,

converting the total head into delivery head, whereas the water conditions in the other wells were such that 12" to 15" of vacuum were registered, hence it was found that the "boosters" became consumers of power only.

The City of Modesto therefore, today, notwithstanding that a very considerable sum of money has recently been expended in new pumping installations, is without adequate fire service and is able to give very poor domestic service notwithstanding that pumping operations are continued during the twenty-four hours.

The present Board of Town Trustees are now considering the reconstruction of the water pumping system with an object of bringing the entire plant up to an efficient standard.

The economic expenditure of public money in improving health conditions, and making a community moderately safe and attractive, is a strong factor in inducing the right kind of people to take up their permanent abode there and invest capital in the country contiguous thereto.



OUR NEXT CONVENTION

Although the last convention of the League was the best yet in point of attendance and program features, the approaching one at Santa Barbara gives promise of being equally as good if not better. Dr. William F. Snow, of the State Board of Health recently called at the headquarters of the League to discuss certain features of the program for the department of public health.

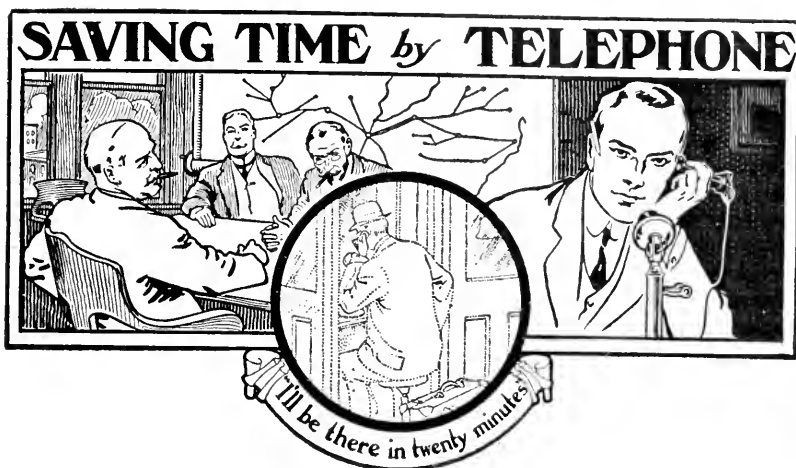
Moving pictures and stereopticon views will again be used for purposes of illustration. San Francisco will have over a mile of film to show her progress and development since the disaster of 1906; these pictures are to be used first at the International Municipal Congress and Exposition at Chicago, after which they will be forwarded to Santa Barbara. Besides the participants named in the July number there will be the following:

Charles Gilman Hyde, Professor of Sanitary Engineering at the University

of California, who will tell about the purification of water supplies, particularly those of small cities.

Mr. Chris P. Jensen, City Engineer of Fresno, will talk on the use and value of "Corrugated Iron Culverts", while Mr. William J. Carr will address the city attorneys on "Recent Court Decisions Affecting Municipalities." Governor Johnson has been invited to attend, and we understand he will make an effort to be present.

The Southern Pacific Company and other railroads will grant the regular convention rate of one and one-third fare for the round trip. A special train for delegates and friends will leave San Francisco for Santa Barbara, on Sunday, Oct. 22nd at 8:45 A. M. The fare will be \$10.90 for the round trip. Those desiring to go by this train will send word to the League Headquarters as soon as possible.



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NOTES AND COMMENTS

San Diego, Aug. 22, 1911.

EDITOR MUNICIPALITIES:—In your July issue you published an article from Mr. C. H. Rice which would indicate that the concrete pipe contract for our sewer system had been defeated. Permit me to say that the court refused to

interfere with the contract pending, and that we are now constructing several miles of sanitary sewers with concrete pipes.

Respectfully,

A. E. DODSON,

Superintendent Sewer Department.

QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry.

Q. I have read so many favorable comments and statements of favorable experience of conducting municipal government under the Commission Form by officials of other cities that I concluded to inquire of you

whether you know of a practical or feasible way or method of trying out the commission form of government by cities of this state of the 6th class operating under the statutory charter.

Do you know of a way we could organize our board of trustees and divide the responsibilities of the government between them to effectually determine the merits of the commission form of government and with the view of later changing to the commission form of government if the experiment proved satisfactory?

It appears to me that the commission form of municipal government might be carried out to a great extent under our present charter and I shall be pleased to learn your view of the matter and to learn whether you know of any cities in like positions to the City of Lindsay which is operating along this line.

Ans. Your communication of August 18th just received. In regard to the establishment of the Commission Form of Government in cities of the 6th class, will say that we had a special measure passed at the last Legislature permitting that to be done; enclosed you will find copy of the Act.

It will be necessary for you to first prepare an ordinance (see Section 852 a), which ordinance will have to be submitted to the electors of your town for approval. Thereafter, notwithstanding the passage of such an ordinance and its subsequent approval by the electors there is nothing to prevent you repealing it in case the commission scheme does not work out as well as you anticipated.

In the Town of Staunton, Pa., and more recently in Lockport, N. Y., charters have been adopted permitting the employment of a business manager to run the affairs of the municipality somewhat after the plan of an industrial corporation. In Lockport the legislative body employs the business manager and he employs such subordinates as he needs. The legislative body meets regularly and gives general instructions to the business manager, who carries out the ideas of the legislative body to the best of his ability and their satisfaction. There are many students of municipal government who have great faith in this plan.

Q. In the index to contents for June *Pacific Municipalities* is the Boston Smoke Law, Page 199, but the article is not there nor anywhere else in the book. Now, I remember having seen an article on the subject in connection with a new smoke consumer in *some* paper but forgot which, and as complaints against the smoke and soot nuisance are frequently coming to this office and we have not yet been able to have it abated, I am trying to obtain all the information that I can, with a view to getting up a proper ordinance on the subject. If you have the article in question or any other data or information leading to it, I would be greatly obliged to you if you would let me have it, thanking you in advance for the favor.

Ans. Yours of yesterday received this morning. We sent an article on the Boston Smoke Law to our publisher which was omitted accidentally. We have sent to Boston for a copy of the law in full, and in case they are able to favor us we will be glad to loan it to you. Municipal legislation on this question is bound to come in the near future, and there are some who contend that such restriction will not only be more healthful but economical as well. We understand that Chicago has also taken up this question. Mr. Mason and myself are going there in about two weeks to attend the International Municipal Congress, and we will bring back any ordinances they may have on the subject, and in the meanwhile you may rest assured as soon as we hear from Boston we will inform you immediately. Enclosed you will find a few clippings on the subject from the *California Outlook*.

Q. Our city is about to enter into the work of constructing a sewer system, and information is desired by the board of trustees of our city as to whether the said board can legally employ a member of the board of trustees as sewer inspector to give the work of construction general supervision and to pay him a salary for such work.

Thanking you in advance for your opinion upon the matter, I beg to remain,

Ans. Replying to your inquiry of August 3rd will say, that we do not know of any reason why you should not appoint a member of the Board of Trustees as Sewer Inspector and pay him a salary. Section 886 of the Municipal Corporations Bill says, that no officer of a city shall be interested in any contract or in any work, but the general understanding is that it means interested as against the city; in this case he would be interested for the city.

Anyhow this is a reasonable construction to place upon that Section and we believe that you would be safe in giving it this interpretation.

Q. Our clerk and marshal receive a compensation based on a percentage of all money received. Now we expect to receive extra money shortly from a bond sale and increased taxes, which would give them exorbitant compensation on this basis. May we reduce the percentage so they will receive no more nor less than before?

Ans. We do not believe you can do this during their several terms of office.

Q. A company in the milk business has their dairy just outside of town. Every day they drive through town and deliver milk at the railroad depot for transportation to another town. Are they liable to our municipal license tax?

Ans. No, they are not, for the reason they are not transacting and carrying on business in the municipality.

Q. Is it the duty of the city attorney of a city of the fifth class to prosecute before the recorder all violations of city ordinances?

Ans. Replying to your inquiry will say, that it is not the duty of the City Attorney in cities of the 5th class to prosecute violations of the city ordinances before the Recorder. His duties are laid down in Section 789 of the Municipal Corporations Bill, and particularly specify that he shall "Advise the city authorities and officers in all legal

matters, and render such other services as may be required of him by the Board of Trustees."

It is your duty as Marshal to prosecute before the Recorder all violations of city ordinances, in accordance with Section 790 of the Municipal Corporations Bill. This is the way police court proceedings are conducted in many municipalities. You merely state the case to the court, and present your witnesses; the court does most of the examination. There is nothing in the great majority of these petty police court matters which calls for the services of a practicing attorney. Should anything arise of extra importance, the trustees might require the City Attorney to handle it.

Q. Members of the Board of Trustees of this city are wondering if there is not some way in which, by concerted action of all the cities in the League, and perhaps the contractors, the payment of the heavy royalties on asphalt concrete wearing surfaces in street paving, can be avoided.

Do you think that it would be worth while for the cities to get together and test the matter out in the Courts? It seems that this form of pavement is becoming universal, and the saving of 25 cents per square yard would be very great to the people of the State.

Ans. In regard to testing the validity of the Warren Brothers patent pavement, would say that we have looked into the matter pretty thoroughly during the past eighteen months, and believe it would be futile to attempt it in view of the many decisions sustaining their claims. In their suit against the City of Owoso, which was reported in 166, Federal Reporter, page 309, the real defendant was the Barber Asphalt Paving Company. The decision was handed down by Judge Lurton and supported the Warren Brothers Company in all their contentions. Judge Lurton has since been promoted to the Supreme Bench. A later decision in their favor

was recently handed down in New York, and in view of these decisions the chance of having them reversed is rather remote. The decisions quoted are very interesting and would suggest that you call it to the attention of your city attorney and the trustees. The substance of their invention is a pavement constructed of broken stone bound with asphalt or bitumen in such proportion that the voids between the stone will be less than 21 per cent. Some of the contractors are evading the patent by putting in more asphalt and bitumen and less rock, but there is a question as to the policy of doing this in order to avoid paying royalty. The point made in the Warren patent is that stone makes a good pavement but not asphalt, and they use the asphalt or bitumen merely as an agent to bind the stone together.

The last decisions rendered against the City of New York and in favor of Warren Brothers Company, went so far as to say any pavement so constructed was an infringement no matter how it was made. Great stress was laid on the point that it was the result that counted and not the method of its construction.

Q. I am informed that the Supreme Court in a decision about two days ago, declared invalid the act of the Legislature establishing and holding elections for separate sewer districts within municipalities. A synopsis of this decision appeared in a newspaper printed in San Francisco called the *Recorder*.

If you can find and send me a copy of said decision I will be very much obliged to you, as it is a matter that affects this city seriously at this time. I understand that the case originated in the City of San Diego and that the proceedings were hurried to the Supreme Court to get a decision from that Court as early as possible since so many cities were contemplating proceedings under said Act. This Act went into effect about April 1911. Thanking you in advance, I am,

Ans. Yours of August 16th just received. Replying thereto will say that the Supreme Court has declared invalid the Act of the Legislature establishing

sewer districts and providing for the issuance of bonds against such districts, on the ground that the Act did not provide for notices to the property owners and give them an opportunity to remonstrate against the work for the size of the district. There are quite a number of lawyers up here who are inclined to think that the decision is not good law; there is an Iowa case almost in point where the Supreme Court of that State held that a portion of a city could be made into a sewer district and specially taxed for sewers for that district.

The decision was published in full in the *Recorder*. We will send you a copy if we can secure one; if not, would advise you to look up the files the first time you have to go to Los Angeles. This Sewer District Act was framed for the benefit of the large territory recently annexed to the City of Oakland; it is thickly populated and without sewers. It will interest you to know that San Anselmo established a sewer district under the law of two years ago, and issued and sold bonds to a Marin county bank.

Q. I would like your opinion as regards the legality and right of the Board of Trustees to purchase a sprinkling wagon, without advertising for bids, the cost of which would exceed One Hundred Dollars. Advertising for bids would delay the purchase at least sixty days and it is a thing needed at once.

Could the Board not order the Street Superintendent or some one else to make the purchase at such a price that to them is known to be low? It does not seem to me to be included in Sec. 874 Municipal Corporation Act.

Ans. We are inclined to believe that you are not forbidden by Section 874 of the Municipal Corporations Bill to purchase a sprinkling wagon costing more than \$100 without advertising for bids. A sprinkling wagon is not a supply or street work in the sense there meant, and we are inclined to believe the Court would take this view of the matter. Furthermore, competition would not be insured anyway as you could frame specifications covering one particular kind of sprinkling wagon. Our advice is to go ahead and purchase the sprinkling wagon without advertising for bids.

What the Cities are Doing

Alhambra has ordered additional fire hose.

Vallejo will install a municipal paving plant.

Burlingame is preparing for some extensive street improvements.

Berkeley will take immediate steps for procuring a garbage incinerator.

Pasadena is adding to the equipment of its municipal lighting plant.

Fortuna has started proceedings for the installation of a sewer system.

Stockton has called for bids for the installation of an underground lighting system.

Anaheim has adopted plans and specifications for constructing its sewer system.

San Rafael citizens are petitioning for the construction of a municipal water plant.

Oroville has decided upon the immediate purchase of an auto chemical hose engine.

Santa Paula is about to vote on a \$16,000 bond issue for curbing the Santa Paula Creek.

King City is advocating a bond issue to take over the private water and lighting plant.

Coronado has purchased a \$7000 Knox auto chemical engine and is erecting a stately fire house.

Riverside is putting in \$30,000 in Fairmount Park and spending \$20,000 for additional fire protection.

St. Helena will soon commence work on the paving of Main street; bids will be opened September 1st.

Corning will hold a bond election in the Union High School district for a \$46,000 High School building in Corning.

San Bernardino may purchase a small plant for the repair of its asphalt streets. The street department has recommended it.

Ventura citizens want to procure an up-to-date motor fire engine, and favor a direct tax to enable its immediate purchase.

Corona is about to vote on a bond issue aggregating \$141,000, including streets, \$96,000; city halls, \$25,000; park site, \$15,000, and \$5,000 for fire fighting equipment.

Sacramento. An asphalt macadam driveway is about to be constructed on the Capitol grounds; also, some new cement sidewalks.

Santa Monica is preparing to hold a bond election on the question of voting \$25,000 for two automobile fire engines and extra fire hose.

Alameda citizens residing in the west side of town, are suggesting the installation of two gasoline pumping engines for auxiliary fire protection.

Eureka will have an automobile chemical engine and hose wagon if the Fire Chief has his way; the proposition has been under consideration for some time.

Upland trustees have authorized the purchase of a chemical fire fighting apparatus mounted on a cart, to be drawn by members of the Volunteer Fire Department.

Lindsay has voted bonds for acquiring the private plant now supplying the city with water. The contract has been recently let for, constructing an up-to-date sewer system.

Orange citizens in mass meeting assembled; call upon the City Council to hold a bond election for a municipal water supply, and also for a modern fire fighting equipment.

Redlands is planning an auxiliary water system for fire fighting purposes exclusively; the plans have been approved, with few changes, by the Board of Fire Underwriters.

Point Arena has installed a municipal pumping plant to obtain water for sprinkling. Regarding its value the City Clerk says: "All our streets and roads are in better condition, some of them that were almost impassible being converted into veritable boulevards."

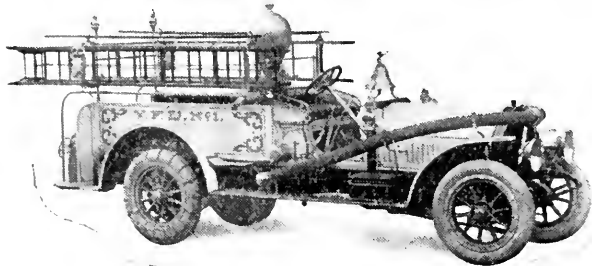
Santa Ana had all arrangements made for holding an election under the Sewer District Act. An opinion was obtained some time ago from Dillon, Thompson & Clay (formerly Dillon & Hubbard) saying such an act was valid, but our Supreme Court has declared otherwise.

South San Francisco built \$33,000 worth of curbs and concrete sidewalks last year, and has awarded contracts on five more streets. At the last meeting of the Board specifications for asphaltic-concrete pavement were adopted, which will be put down under the "Improvement act of 1911."

Newman is one of the biggest little towns in the state. It has a \$30,000 High School and is building a \$50,000 Grammar School. Last year a \$30,000 sewer system was installed, and \$50,000 worth of standard asphalt pavement is now being put down. There are two banks with combined assets of over \$1,000,000, both of which recently moved into new buildings aggregating in cost \$60,000.

FIRE STEAMERS TESTED—AUTOMOBILE ENGINE MAKES GOOD

Court Square Crowded by People who Witness Event. Throw Water to Top of Bank Building



Hundreds of people were gathered at Court Square Friday afternoon to witness a test between one of the fire steamers of the Montgomery fire department and the auto fire engine steamer of Webb Motor Fire Apparatus Company, of St. Louis, which was sent here for the purpose of making a competitive test against a rival company. The rival company however, failed to show up and a check for \$500 put up by it, as a guarantee to be here Friday to participate in the test, was forfeited to the city. The check for the same amount put up by the Webb Company was returned to its representative who was here yesterday.

The Webb automobile fire engine "made good." The test was thorough enough to demonstrate the fact that the auto engine is a good piece of apparatus for any city. It can get to a fire quicker and after reaching the scene, can have a stream of water playing on the blaze before other apparatus reach the scene. The stream of water pumped by an auto engine is more powerful and never fluctuates.

In the test between the old steamer of the local department and the auto fire engine Friday afternoon, water was pumped from the basin on Court Square. Both steamers pumped streams as high as the top of the First National Bank building, but when the word "start" was given, the auto engine had its stream going first and maintained a regularity throughout the test while the stream of the city's engine, fluctuated, at times throwing a very high stream and again falling back reaching only a medium height.

At one time during the afternoon, the power of the two steamers were combined, both pumping water through separate hose but connected together through the same nozzle. This stream of the combined engines was thrown much higher than the flag-pole on top of the First National Bank building.

As a closing test of the afternoon, both pieces of apparatus were sent to the Five Points fire station and a run was made from there to Court Square where each engine coupled to a hydrant and started a stream. Both left the station at the same second but the auto engine reached the square two minutes ahead of the old steamer and had a stream of water shooting into the air five minutes ahead of the city's steamer, showing a saving in time of seven minutes. Seven minutes means much in case of a fire.

The auto engine made the run from Five Points Station in thirty seconds time, and had a stream going in a total of fifty seconds after leaving the station.

After the test at the square, Mr. Davidson took the auto engine out on Montgomery county's fine roads and made a fourteen mile run for the benefit of one of the commissioners, and several newspaper men.—Montgomery Journal, Montgomery, Alabama, Saturday, July 22, 1911.

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LOS ANGELES

WEST BERKELEY

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

WRITE FOR CATALOGS

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S. F.

Asphalt Machinery

J. I. Case Thresh'g Mch Co. 616 Myrtle St. O'k'l'nd
A. L. Young M'chy Co., 26-28 Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Arch. Terra Cotta

Gladding, McBean & Co., Crocker Bldg, S. F.
Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Automobile Public Service Wagons

The Thomas B. Jeffery Co., 117-125 Valencia St., S. F.
Reliance Auto. Co., 342 Van Ness Ave., S. F.
American La France Fire Eng. Co., 660 Mission St., S. F.
American Motors Co., 567 Golden Gate Ave.
Consolidated Motor Car Co., Van Ness Ave.
Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Bells

W. T. Garratt & Co., 277-279 Fremont St, S. F.

Bitulithic Pavement

Warren Brothers Company, Los Angeles, Cal.

Blue Prints

So. Cal. Blue Print & Supply Co., 800 L. A. Trust Bldg., Los Angeles.

Bridge Builders

E. T. Thurston, Jr., Wells, Fargo Bldg., S. F.

Concrete Construction

Esterly Con. Co., Inc., 717 Market St., S. F.

Concrete Mixers

California Hydraulic Eng. & Supply Co., S. F. and Los Angeles
Barber Asphalt Paving Co., S. F. & L. A.

Constructing Engineers

Fred'k C. Roberts & Co., 221 Sheldon Bldg, S. F.
Cal. Hydraulic Engineering & Supply Co., San Francisco and Los Angeles

Geo. E. Dow Pumping Engine Co. S. F. & L. A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.
E. T. Thurston, Jr., Wells Fargo Bldg, S. F.
American Engineering Corporation, 57 Post St., S. F.
Stephen E. Kieffer, 1st Natl. Bank, Oakland

Culverts

Cal. Corrugated Culvert Co., Los Angeles and W. Berkeley
Standard Corrugated Pipe Co., S. F.

Dump Carts and Wagons

J. I. Case Thresh'g Mch Co. 616 Myrtle St. O'k'l'nd
A. L. Young M'chy Co., 26-28 Fremont St., S. F.
Watson Wagon Co., Canastota, N. Y.

Electrical Plants & Machinery

A. L. Young M'chy Co., Fremont St., S. F.

Engravers and Bond Printers

A. Carlisle & Co., 251 Bush St., S. F.
Schmidt Lith. Co., Second & Bryant Sts., S. F.
Sierra Art Eng. Co., Front & Com. Sts., S. F.

Engineers' Supplies

W. T. Garratt & Co., 277-279 Fremont St, S. F.

Fire Department Equipment

Gorham Eng. & Fire App. Co., 18 Fremont S. F.

Fire Engines

Gorham Eng & Fire App Co., 48 Fremont St S. F.
Squires & Byrne Co., 565-567 Mission St., S. F.
Pacific Fire Extinguisher Co., 507 Montgomery St., S. F.

Fire Hose

Gorham Eng & Fire App Co., 48 Fremont St S. F.

New York Belting & Packing Co., 129-131 First St., S. F.

The Gutta Percha & Rubber Mfg. Co., 34 Fremont St., S. F.

The Diamond Rubber Co.

Eureka Fire Hose Mfg. Co., 610 Postal Telegraph Bldg., S. F.

Squires & Byrne Co., 565-567 Mission St., S. F.

Bowers Rubber Works, San Francisco

Fire and Police Boats

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Pumps

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Gasoline Engines

Cal. Hydraulic Eng. & Supply Co. S. F. and Los Angeles
Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Inspections and Tests

Robt. W. Hunt & Co., 418 Montgomery, S. F.

Machine Works

W. T. Garratt & Co., 277-279 Fremont St, S. F.

Municipal Accountant

William Dolge, C. P. A., 311 California St., S. F.

Municipal Castings

Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Pacific Foundry Co., 18th & Harrison, S. F.

Municipal Engineers

Fredk. C. Roberts & Co., 461 Market St., S. F.
Sloan & Robson, Nevada Bank Bldg, S. F.

Municipal Lighting Plants

Fredk. C. Roberts & Co., 461 Market St. S. F.

Municipal Printers

A. Carlisle & Co., 251-253 Bush St., S. F.

Municipal Water Works

Fredk. C. Roberts & Co., 461 Market St., S. F.
Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Office Furniture

H. S. Crocker Co., 674 Mission St.

LIST OF RESPONSIBLE FIRMS—Continued

Pavement Materials

Barber Asphalt Paving Co., S.F. and L. A.
Warren Brothers Company, Los Angeles, Cal.

Pumping Machinery & Supplies

California Hydraulic Eng. & Supply Co., San Francisco & Los Angeles
W. T. Garratt & Co., 277-279 Fremont St., S.F.
Pacific Fire Extinguisher Co., 507 Montgomery St., S. F.
Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Playground Apparatus

A. L. Young Machinery Co., S. F.

Road Machinery

J. I. Case Threshing Mch. Co., 616 Myrtle St., Oakland, Cal.
The Good Roads Mach'y Co., Ft. Wayne, Ind.
A. L. Young M'chy Co., Fremont St., S. F.
Petro lithic Co., 345 P. E. Bldg., L. A.
Barber Asphalt Paving Co., S. F. & L. A.

Roofing

Barber Asphalt Paving Co., S. F. and L. A.

Rubber Goods

Squires & Byrne Co., 565-567 Mission St., S.F.
The Diamond Rubber Co.
Bowers Rubber Works, San Francisco

Sanitary Wiping Rags

The Raychester Co., 1448 Folsom St., S. F.

Scrapers

J. I. Case Thresh'g Mch Co. 616 Myrtle St. O'kl'nd

A. L. Young M'chy Co., Fremont St., S. F.
Petro lithic Co., 345 P. E. Bldg., L. A.

Sewage Pumps

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Sewer (Concrete)

Esterly Con. Co., Inc., 717 Market St., S.F.

Sewer Fittings

Pacific Foundry Co., 18th & Harrison, S. F.

Sewer Pipe and Terra Cotta

Gladding, McBean & Co., Crocker B'ldg., S. F.
Steiger Terra Cotta Co., Mills B'ldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Sewer Systems

Sloan & Robson, Nevada Bank Bldg., S. F.

Sidewalks (Cement)

Esterly Con. Co., Inc., 717 Market St., S. F.
Steel Protected Concrete Co., Phila., Pa.

Street Signs

A. L. Young Mch. Co., S. F.

Street Sweepers

A. L. Young M'chy Co., Fremont St., S. F.
C. A. Blume Con. Co., 185 Stevenson St., S.F.

Water Meters

Pittsburg Meter Co., San Francisco

Water Works Equipment

California Hydraulic Eng. & Supply Co., San Francisco and Los Angeles
Geo. E. Dow Pumping Engine Co, S.F. & L.A.

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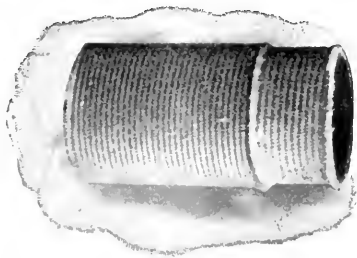
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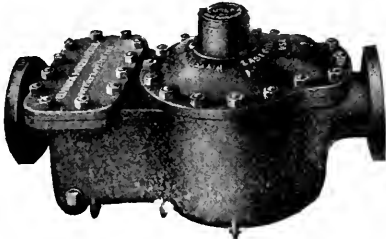
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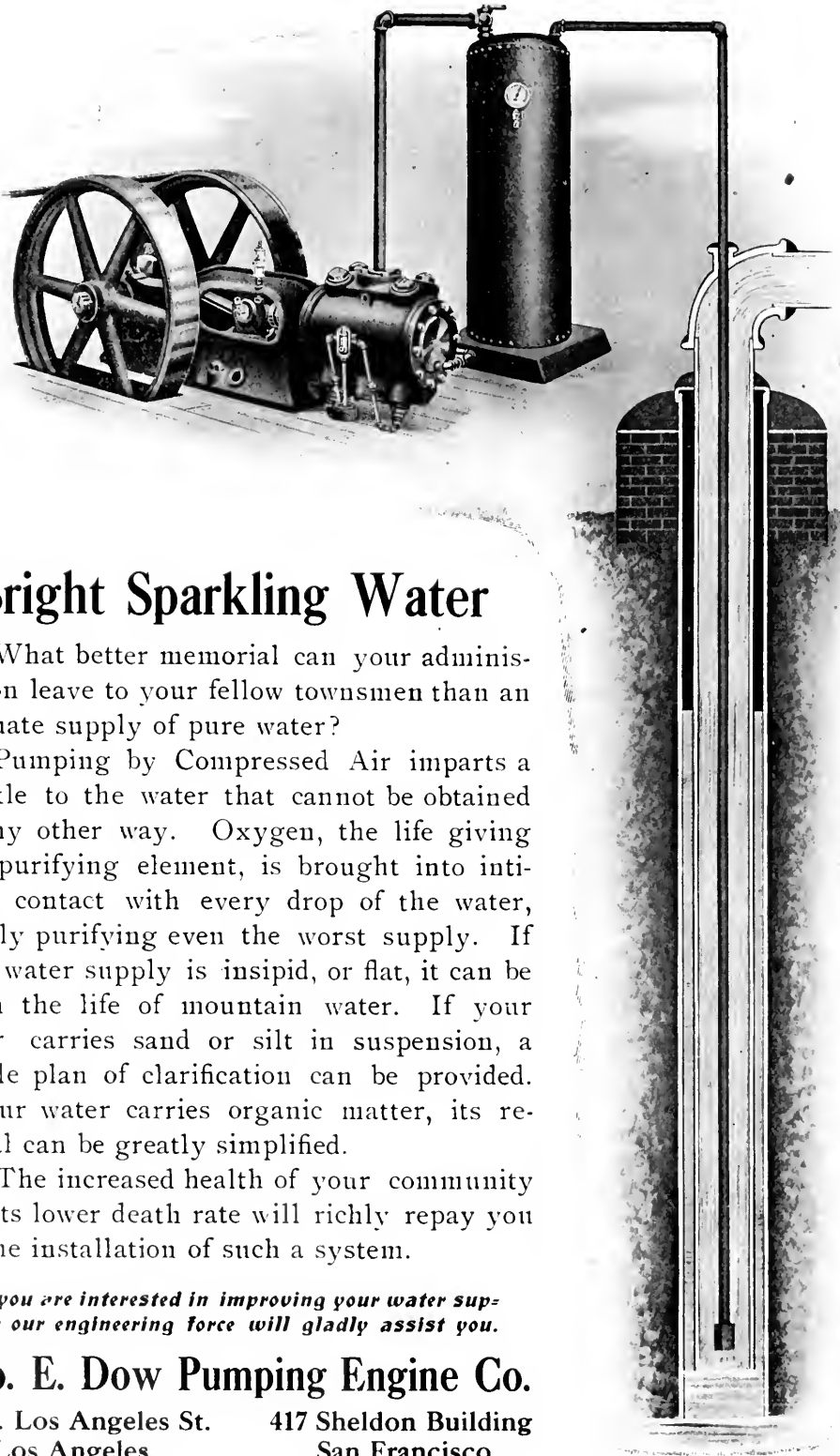
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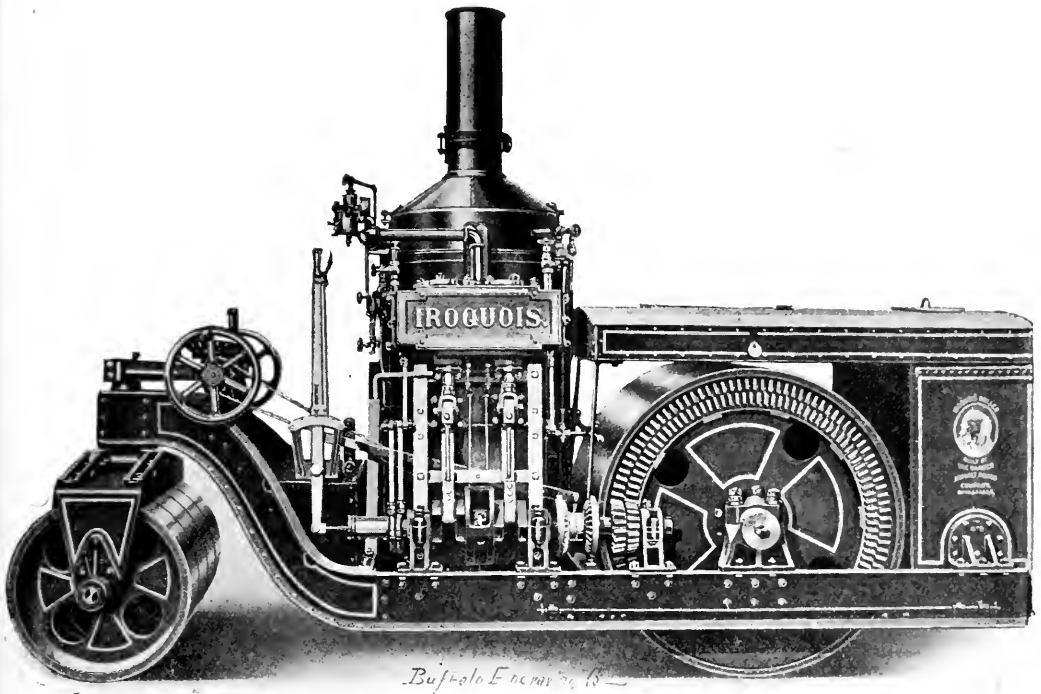
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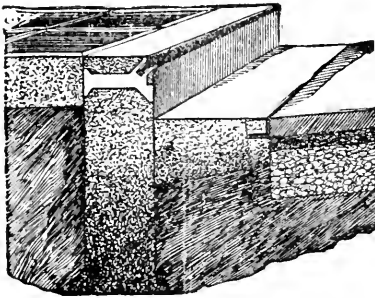
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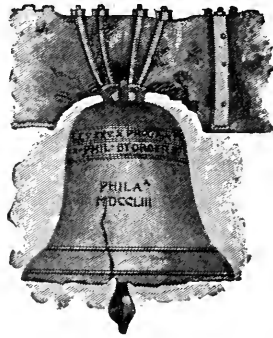
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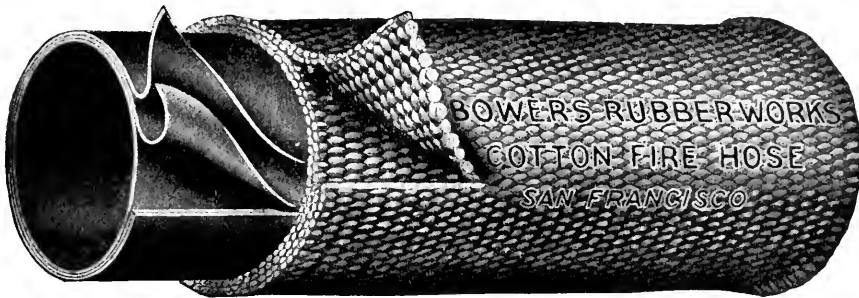
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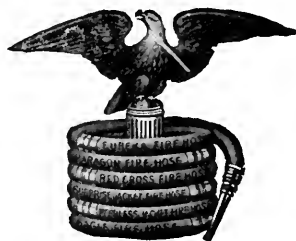
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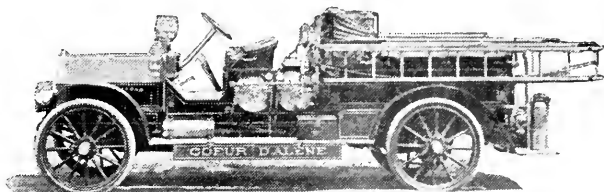
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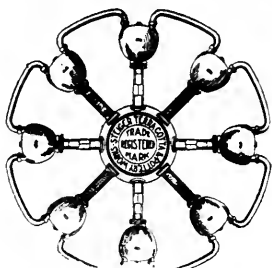
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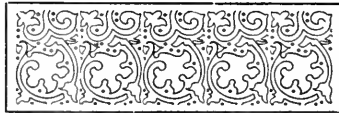
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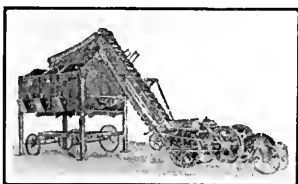
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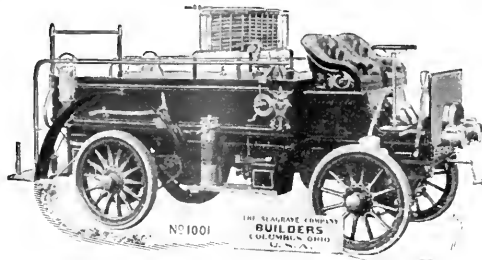
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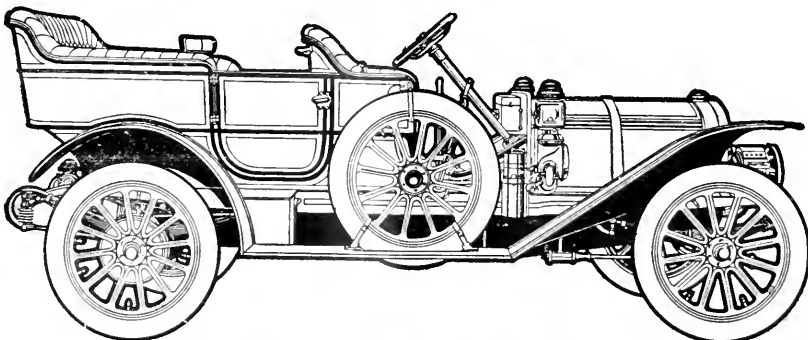
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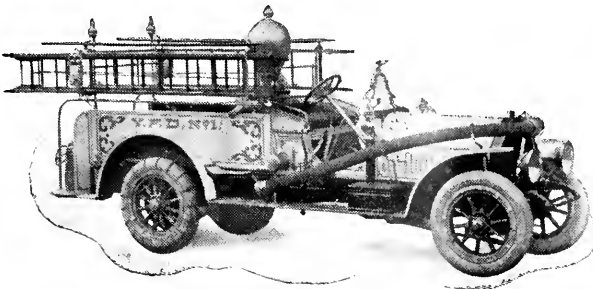
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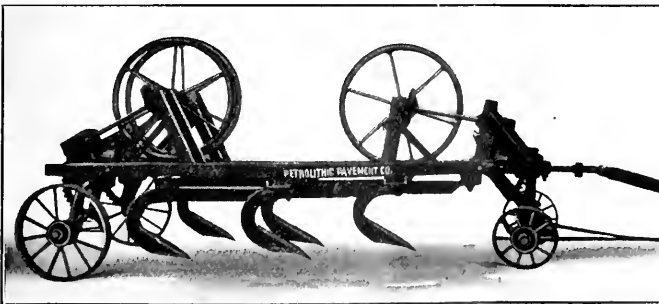
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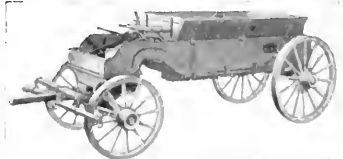
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Entered at Post Office, Santa Clara, Cal., as Second-Class Matter

VOL. XXV

THIRTEENTH YEAR

No. 2

EDITORS	-	-	-	H. A. MASON AND WM. J. LOCKE
EDITORIAL OFFICE	-			NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO
PUBLICATION OFFICE,	-	-	-	SANTA CLARA, CALIFORNIA

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Every city belonging to the League of California Municipalities is entitled to a free copy of this magazine every month for each of its officials; if not received kindly notify the Secretary. See that your City is in the above list.

PACIFIC MUNICIPALITIES

▲ Journal for Progressive Cities

VOL. XXV

SEPTEMBER 30, 1911

No. 2

THE STREETS OF SANTA BARBARA

BY FRED L. JOHNSTON

There are about 100 miles of streets in the city of Santa Barbara, of which 80 odd miles are passable to traffic. Of the latter amount $8\frac{1}{4}$ miles are paved, curbed and guttered, and 3 miles more of pavement are either under construction or proceedings therefor have progressed far enough so that resolutions ordering the work will pass the council shortly. In addition to the above, 25 miles more of streets have been graded, curbed and guttered, leaving some 45 miles of streets passable to traffic, but unimproved.

Method of Doing Street Work

Since the last meeting of the legislature practically all of our proceedings have been in accordance with the "Improvement Act of 1911," which we find offers many advantages in doing street work over the old "Vrooman Act" and its amendments, notably in the elimination of red tape, and advertising expense, and the greater security of collections to the contractor, thereby eliminating risk and permitting him to take work at a lower price.

Pavements

A large proportion of the pavement that is being laid at the present time is sheet asphalt, $3\frac{1}{2}$ inches in thickness, laid in two courses upon an earth sub-grade. The latter is prepared in the usual manner by rolling with a heavy steam roller. A course of asphalt concrete two inches in thickness is laid thereon. A second course of standard sheet asphalt wearing surface is afterward laid upon the concrete. This gives us a pavement having a life of probably 5 to 10 years at a cost of from 12 to 14 cents per square foot.

Oil macadam pavement is in favor in the best residential portion of the city. A contract has recently been let for a little over half a mile of work, to be 7 inches in thickness, laid in two courses, the top layer only to receive the asphaltic oil. The contract price was 15.9 cents per square foot, exclusive of grading.

Curbs and Gutters

All our recent work, either grading or paving, involves the construction of permanent curbs of stone or concrete. Our gutters are of stone or concrete on paved streets, and of either stone, concrete or asphalt upon newly graded streets. Although we always recommend the use of either stone or concrete, still we permit the use of asphalt on streets that are only to be graded. While asphalt gutters cost about half as much as stone or concrete, their life is quite limited, probably averaging not over 5 years.

THE SANTA BARBARA CONVENTION

An Attractive Program Prepared—Large Attendance Anticipated

THE Fourteenth Annual Convention of the League of California Municipalities will be held at Santa Barbara during the week of October 23d to 28th.

The sessions will be held at Hotel Potter, where commodious quarters have been secured. The preliminary session will be held Monday afternoon but the real work of the convention will not commence until Tuesday morning.

The usual one-and-one-third fare rate for those attending the convention has been granted by the railroads. In addition a special train will leave San Francisco

on Sunday, October 22, at 8:05 A.M. with a special round trip rate of \$10.90. Those who wish to take this train should notify the secretary of the league as soon as possible. The special rate can be taken advantage of by the wives of city officials and it might be a good idea to have as many ladies present as possible. If women should be granted the suffrage at the election on October 10, the consideration of municipal problems would appeal to them and it might be deemed advisable to organize them into an auxiliary of the League.

A comprehensive program has been prepared, though some of the details remain to be settled.



BEVERLY L. HODGHEAD,
President of the League of California Municipalities

TAXATION AND REVENUE

Probably the most important subject to be discussed is that of Taxation. The old system of raising revenue by a general property tax is being generally condemned as being unscientific, unjust and burdensome. The state has seen fit to abolish it as a means of raising state revenue. Then why should the cities and counties be forced to cling to it? In other words, is it not time that the local bodies should have local option in taxation as well as in other things? These questions will be



J. STITT WILSON.
Mayor of Berkeley

seriously discussed by those who have advanced views on the subject. First is Washington Dodge, assessor of San Francisco for the past twelve years, who has investigated the question in a practical way. Then we will have the views of that well-known socialist, J. Stitt Wilson, Mayor of Berkeley.

Supervisor Andrew J. Gallagher of San Francisco, Secretary of the Labor Council, will submit his ideas from the labor stand point, and possibly Governor Johnson may have a few words to say in this connection.

The operation of the new state revenue law will be considered as correlating to the question of taxation, and State Controller, Hon. A. B. Nye will speak on this subject and show its relation to the municipalities and how the new system has been worked out. He will doubtless be asked a large number of questions.

EXPERTS IN MUNICIPAL ADMINISTRATION

There are some city officials who—sad to say—"haven't got no use for experts," so possibly the discussion of this subject will be educational. The topic will be



A. B. NYE. State Controller

introduced either by Mayor Mott of Oakland or by Mr. Mason, secretary of the League. There will be a chance afforded to present the negative side.

COMMISSION GOVERNMENT

As this subject was exhaustively debated at the last convention, it will hardly be necessary to go over the same ground. The subject will therefore be considered

impromptu and will be limited to "new development in Commission Government." The cities who have recently been organized on this plan will be heard from.

MUNICIPAL EFFICIENCY

Related to the subjects of experts and commission government is that of securing the highest efficiency in the administration of municipal affairs. "The Work of Municipal Efficiency Bureaus" will be the subject of a paper by E. C. Bellows, member of the Civil Service Commission of Los Angeles. This is an important topic.

MUNICIPAL OWNERSHIP

This subject will be treated in a practical way rather than academic. Prof. C. D. Marx, of Stanford University and member of the Board of Public Works of Palo Alto, will speak on the subject of water supplies. Frederick C. Roberts will speak on "Municipal Water Systems for Small Towns." We hope to have a paper from Professor Cory of the State University on "Municipal Lighting" and reports from the electric plants of Alameda, Palo Alto, Pasadena, Riverside and other places. If time permits, an impromptu discussion will follow on "Experiences of Cities with Municipal Ownership."

PANAMA PACIFIC EXPOSITION

President C. C. Moore of the Panama Pacific Exposition Company will address the convention on "How the Cities Can Aid the Exposition" and the benefits to be derived therefrom.

In this connection Mayor Eric Lange, of Burlingame, will present a plan for a "Model City" at this Exposition to be managed by the League.

FRANCHISES, ETC.

There are a number of constitutional amendments to be voted on on October 10th. Several of these relate to municipal corporations and deal with fixing rates and granting franchises. In the event of their adoption, some new questions will be presented, and Percy V. Long, City Attorney of San Francisco will be prepared to handle them.



PERCY V. LONG,
City Attorney, S. F.



FRANK K. MOTT,
Mayor of Oakland

LOCAL OPTION

H. T. Miller, City Attorney of Visalia, will present "Some Phases of Local Option," as the same were developed in the recent wet and dry controversy in that city.

GARBAGE DISPOSAL

This is an important subject to all cities at the present time. Two papers will be presented one by J. K. Blue, assistant engineer of San Francisco who has charge of the construction of garbage destructors in that city and by the



S. J. VAN ORNUM,
City Engineer, Pasadena

City Engineer of Fresno, will speak on the "Use of Corrugated Iron Culverts," and S. J. Van Ornum, City Engineer of Pasadena will contribute to the subject of streets.

SEWAGE DISPOSAL

The Imhoff System of Sewage Disposal will be described, probably by C. E. Grunsky, whose eminence in the engineering profession is generally recognized. Professor Tibbetts of San Francisco will also deliver an address on Sewers.

RECENT COURT DECISIONS

W. J. Carr, City Attorney of Pasadena will discuss "Recent Court Decisions" and may be counted on as able to furnish some interesting information.

MUNICIPAL ACCOUNTING

Wm. Dolge will read a paper on Municipal reports and accounts with reference to the recent law requiring annual reports from the municipalities to be made to the state controller.

firm of Sloan and Robson, consulting engineers who have made an investigation of systems for garbage disposal for small towns.

OILED STREETS

There is always something new to be brought out in this connection. There will be two papers on the subject of the "Use of Asphaltic Base Oils for Roads and Streets" by City Engineer Geo. W. Randle of Sacramento, and Chas. A. Blackmar Chief of the Oil Inspection Bureau, Los Angeles. These papers will be more or less technical and highly instructive.

STREET IMPROVEMENTS

There will be a general discussion for the benefit of street superintendents on the subject of street work and the latest "wrinkles" discovered in this connection. Chris. P. Jenson,



WM. J. CARR,
City Attorney, Pasadena

PACIFIC MUNICIPALITIES

STREET IMPROVEMENT ACTS

Recent legislation on this subject will be discussed by the attorneys' section.

THE SEWER PIPE CONTROVERSY

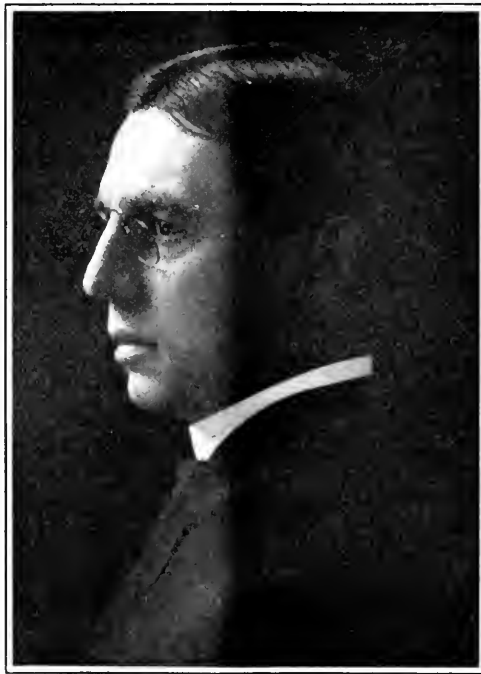
The relative merits of cement and salt-glazed pipe will be discussed in the engineering section.

FIRE PROTECTION

In view of the immense losses by fire in our cities, the means of prevention thereof will be discussed by George W. Robertson, of the Fire Underwriters in a paper entitled—"Forms of Fire and Building Ordinances for Small Towns."

IMPROMPTU SUBJECTS

Should time permit, impromptu discussions will be had on many other subjects



WILLIAM DOLGE,
Certified Public Accountant, San Francisco

such as—"Neighborhood Centers", "Street Adornment", "Play Grounds", "City Planning."

SANITATION

The Association of Health Officers will hold sessions during the week with a complete program covering important subjects relating to this department.

MUNICIPAL EXHIBIT

This feature which proved so interesting and valuable last year will be repeated at Santa Barbara much more extensively. A large number of persons and firms dealing in municipal supplies and appliances have signified their intention to contribute to the exposition. This exposition will be a prolific source of new ideas

and enable city officials to accept the latest and best appliances for doing public work. It will be a school by itself.

J. F. Selig, Publicity Manager of "Pacific Municipalities" will have charge of the Exposition and will be at the Hotel Potter, Santa Barbara, from Oct. 16 to the close of the meeting. Delegates and exhibitors may write to him for reservations.

Already various cities are reporting the names of officials selected to attend the convention. In one case every city official has been directed to attend. This is as it should be, but no city or town is so inconsequential that it cannot afford to be represented by at least one. Reno, Nevada will send its Mayor and Engineer and delegates from Washington and Oregon are expected as an invitation has been extended to the cities of those states to be represented.



W. P. BUTCHER,
City Attorney, Santa Barbara, Cal.

LOCAL ENTERTAINMENT

In no sense of the word can the convention be called a junket. The convention is purely a business affair and any entertainment is subordinate thereto. The officials of Santa Barbara, however, will not neglect to offer their hospitality and opportunity will be afforded for such sight seeing as will not interfere with the work of the convention. The last day will be spent as the Santa Barbara officials may direct, and no doubt that the day will be spent with pleasure and profit to all.

The meeting promises to be full of enthusiasm and productive of good work. Every city and town in the state should be fully represented.

SANTA BARBARA SANITARY SEWER SYSTEM

SANTA BARBARA delightfully located by the sea with her attractive climate and natural beauty seems to have made the most of her many opportunities and ranking high among them, is her model up-to-date Sanitary Sewer System.

The following extracts taken from City Engineer, Fred L. Johnston's letter gives a concise description of the Santa Barbara Sewer System.

Pacific Municipalities,

Gentlemen:

The following is data relative to the Santa Barbara Sewer System: We utilize a separate sewer system, using one set of pipes for sanitary sewage and another for storm water. We have very few storm sewers, it being the policy of the people to keep the water in the gutters as long as possible, and only throw it into the storm sewers when it becomes absolutely necessary.

The first sewer laid in the City of Santa Barbara was a vitrified iron stone pipe sewer a mile and a half long in its main street. The construction was completed in Dec. 1886.

There is a great variation in the soil in which the sewer pipes are laid in Santa Barbara. Occasionally we find loam, but it is an exception. Usually the pipes are laid in hard pan, frequently interspersed with cemented gravel and cobbles, and in many places large sand-stone boulders have to be cut through, so our excavation costs are high.

For house connections we make use of four inch vitrified sewer pipe, except in the exceptional case of hotels or large buildings where a larger pipe is necessary.

Our smallest street sewers are made

of six-inch vitrified sewer pipe, and the largest street sewers are 18-inch vitrified salt glazed sewer pipe (an exception to this would be our Santa Barbara outfall sewer which is a wood-lined and wood-covered reinforced concrete pipe, at present in poor condition).

We endeavor to maintain velocities in our pipes at from $2\frac{1}{2}$ to 4 feet per second, and try to adhere quite strictly to the lower limit, but frequently have to exceed the upper limit on the hillsides.

We have about 36 miles of vitrified salt glazed sewer pipe in our Sanitary Sewers, and about $1\frac{1}{2}$ miles of storm water sewers. This is a mileage of main sewers only, excluding side connections, the mileage of which we have never estimated. As given above, the smallest diameter of these mains is six inches and the largest 18 inches.

Concrete pipe is not used for sanitary sewage except in the one instance of the Santa Barbara street outfall mentioned above. Our storm sewers are usually made with a concrete invert and brick arch. Such concrete pipe as we have used is mostly for culverts and inlets from catch basins to storm sewers, etc., and has only been used comparatively recently. We have no reinforced concrete pipe except as used in the outfall mentioned above, all other pipe being plain. The sizes which we have made use of run from 12 inch to 24 inch.

In reply to the question, "Has the concrete pipe failed or softened up?" I will state as mentioned above, the Santa Barbara street outfall is in bad condition, but this might very well be attributed to the placing of the pipe, and at the present time we are not in a posi-

tion to definitely attribute any softening of the pipe to the action of the sanitary sewers.

Our sewerage is emptied directly into the ocean, about 500 feet out beyond the tide.

Possibly the most interesting thing in relation to our sewerage system from an engineering point of view is the sewage pumping station, which makes it possible to provide sewerage facilities for a part of the town which has heretofore been denied that privilege, this part of it being only slightly above the high tide level at a considerable distance back from the ocean, and therefore being unable to drain its sewage directly into the ocean by gravity. The system of pipes draining to this sewage pumping plant is of only recent construction, and we plan rather extensive extensions to pro-

vide sewage facilities for a goodly portion of this area not yet supplied with sewage facilities. The pumping plant consists of two "7x18" vertical type centrifugal sewage pumps, direct connected to 220 volyephase 60 cycle alternating current Westinghouse verical motors, the latter being located above ground level, thereby preventing the possibility of ever flooding the motors. Each unit has a capacity of 1650 gallons per minute, and is sufficiently large to handle the flow of sewage for years to come, leaving one unit always in reserve.

Trusting that I have covered the ground sufficiently in detail, I am,

Very truly yours,

FRED L. JOHNSTON,

City Engineer.

Santa Barbara, Sept. 7, 1911.



CONSTITUTIONAL AMENDMENTS AFFECTING CITIES

H. A. MASON

There are four amendments proposed to the Constitution that will be voted upon on October 10th that relate to city government. These are Senate Constitutional Amendments No. 20, 47, 48 and 49.

No. 20, deals with the matter of framing freeholder's charters. One new provision consists of a change so that amendments may be voted upon at any time between the regular sessions of the legislature instead of requiring a full two years to elapse between such elections. This is a beneficial change. Another provision is that which permits fifteen percent of the voters to propose a new charter. At present the voters can propose amendments but can not initiate proceedings to obtain a new charter.

This change is desirable. There are however a large number of details as to how petitions shall be signed, verified and certified to that could have been better omitted. These details act as restrictions. The amendment as a whole is not very consequential and can be voted for with a feeling of indifference.

Senate Constitutional Amendment No. 47, deals with the subject of regulating public service business. It permits the legislature to confer power on the Railroad Commissions to regulate all persons or corporations furnishing water, gas, electricity, transportation and communication, etc. Through this commission stock and bond issues may be controlled, publicity secured, accounting systems prescribed and the quality

of service furnished may be regulated. It also permits municipalities to surrender to the commission their power to regulate rates through an election in the respective cities held for that purpose. The power to regulate such rates when surrendered may be "recalled" by a similar election. This amendment, while being a step in the right direction fails to meet the expectations of the advocates of a public service commission fashioned along the lines of similar bodies that have done official work in Wisconsin and other states. The fear is that the railroad commission will be so overburdened as to render it incapable of efficient work. It is not what the League of California Municipalities demanded at the San Diego meeting. The writer may vote for the amendment but will have no serious regrets should it be defeated.

Senate Constitutional Amendment No. 48, deals with civil service and applies principally to San Francisco. It makes the county offices subject to the civil service provisions of the charter of that city. As the administration of the county offices of San Francisco, at the present time is fully as efficient as those under civil service (possibly more so) it is a question whether that city will gain much by the adoption of the amendment.

Senate Constitutional Amendment No. 49, is the most important one of the lot. It repeals that part of section 19 of Article XI that gives to water, gas and electric companies a perpetual franchise in the public streets with but meager powers to regulate the same. Under the constitution these public corporations may come into any city and town, tear up the streets or plant poles, almost at pleasure and without gaining the consent of the municipal authorities. The repeal of this provision is necessary

in order to secure home rule for cities. The amendment also expressly grants power to the cities to operate their own public utilities. Some cities do not have full powers to do this. Putting this grant of power in the constitution places it beyond the power of the legislature to interfere and limit the cities by prescribing conditions which might hamper them in realizing their desires.

A certain individual named E. P. E. Troy (an earnest and at times misguided advocate of municipal ownership) has been sending communications to the newspapers throughout the state describing this amendment as being "dangerous." A careful reading of his argument discloses that it is based on a fear that municipalities may grant franchises without proper safeguards. In turn, this argument to be valid, must be based on the assumption that the people are not to be trusted to manage their own affairs. We have heard this objection stated before, but it usually comes from the other side of the house. It sounds strange coming from one who has always championed the cause of the people.

The objections to this amendment are of the "bogy" character and lack substance.

The amendment should by all means be adopted.



More Money for the State Board of Health

Another meritorious bill is one providing more money for the state board of health. The amount now appropriated per capita is far below that of many other states. This is one of the departments of our state government which should not be handicapped by lack of funds. The members of the league who have attended the last two annual conventions of the league obtained some idea of the good work being done. Maintaining the public health is one of the most important functions of government and is something that should be liberally supported.

THE SUCCESS OF CONCRETE PIPE FOR SANITARY SEWERS

July issue contained a communicated article on "*The Failure of Concrete Pipe for Sanitary Sewers*", which was so ingenuously misleading from title to signature as to readily suggest its source. However the Clay Pipe Trust will fail to drive from their hitherto monopolized field, this new competitor. Publicity, such as they themselves are giving the controversy, is all that is needed to insure the same rapid progress of Concrete in the field of sewerage, that it has made in every other department of construction, therefore we welcome these attacks, only hoping they will be numerous and widespread. "If your competitor talks about you, no matter what he says, put him on your payroll."

At the same time we ask from fair and sincere journals like yours, a hearing for our side and in presenting it we shall follow a fixed policy of adherence to conservative statement and avoidance of personalities. We are able to understand the alarm of the Clay Pipe interests and to be charitable toward their vehemence.

Many things in the article referred to were nearly true. For instance the title would have been exactly correct if the word "*failure*" had been changed to "*success*". Anyone reading the article would believe that Concrete Pipe lost the fight with Clay Pipe at San Diego, for the conclusion of the matter was adroitly left to a carefully misled inference. The facts are that after a desperate fight by the Clay Pipe people, which started with the adoption of the specifications, and ended in the Superior Court, a fight in which they exhausted

every resource and lost every point, the City of San Diego entered into contract for 35 miles of machine made Concrete Pipe for sanitary sewers, and the filling of this contract is now being rapidly carried forward. Thus it appears that while the operation may have been highly satisfactory, the patient really died.

The article describes a trip to Los Angeles made by some of the Council and the City Engineer at the request of the Clay Pipe people. They were there shown some cement pipe which had been in use for some 20 to 30 years and were in bad condition *in places*. Regarding this it seems fair to suggest that cement pipe made 30 years ago in the little Mexican town of Los Angeles should hardly be considered by engineers in comparison with the scientific product of to-day. The whole industry of Concrete construction has practically been developed since then. And even assuming that proper methods were understood at that remote time, it is reasonable to suppose that with cement at \$8.00 per barrel there was not a very large amount of it put in this unknown mixture. But even taking this ancient pipe just as we find it and without apology, their own statements show that some of it was not in a bad condition, indicating clearly that it was not uniformly made—just exactly the weakness one would expect and a fatal one. If it had all been as good as some of it, it would be a splendid testimonial to the worthiness of properly made concrete for sanitary sewers. As proof of this we quote the following affidavit regarding another ancient Concrete Pipe sewer

in Los Angeles which the Clay Pipe people do not refer to.

Los Angeles, June 16, 1911.
 "Geo. P. Robinson, being duly sworn, deposes and says: "That he is and has been for several years an Assistant Engineer in the Office of the City Engineer of Los Angeles, a part of his duties being to supervise the construction of storm drains and other conduits in said city, and portions of the sanitary sewer system have thus come under his observation. That according to the records in the office of the City Engineer of Los Angeles there was constructed in the year 1880 (31 years ago) a certain 16" Cement Concrete Sewer near First Street and Central Ave. and across certain properties and streets to Winton Street near Los Angeles Street, a distance of about 3000 feet, and the same has been in constant use as a part of the general sewer system of the city of Los Angeles from that time up to a few weeks ago (June 16, 1911) when it was abandoned because of its being partly upon private ground. That while installing a storm drain since that time he had occasion to tear up a portion of this Cement Concrete Sewer and he particularly inspected it with a view to ascertaining its condition and preservation, and he retained a sample of the pipe and it is now open to inspection. He found that although it had been in constant use for about 30 years, it showed only a slight indication of having been injuriously affected by the sewage, the only effect noticeable being a discoloration and a slight disintegration to the extent of about $\frac{3}{8}$ of an inch, of that portion of the invert which had been submerged by sewage. He avers that the said pipe was a 16" Cement Concrete pipe with a shell of about $1\frac{3}{4}$ inches and that said pipe was in a strong *serviceable condi-*

dition and evidently fit for use for a long period to come.

And on another occasion about 18 months previously, affiant cut into and observed the same sewer at another point near 4th and Wall Streets and the same was found in practically the same condition as that described above. Affiant believes that methods of construction have improved in the present day, and that Cement Concrete Pipe if properly made will furnish a strong, serviceable and sanitary pipe for sewage purposes.

Subscribed and sworn to by,

George P. Robinson."

Last Fall the writer called on Mr. Wm. Bostaph, City Engineer of Ogden and was shown by him letters from many City Engineers on the question of Concrete Pipe for Sanitary Sewers. Ogden had been considering its use for some time and Mr. Bostaph endeavored before deciding, to find out what experience other cities were having with it.

A summary of the correspondence is given below and is a striking refutation of the claims made by the Commercial enemies of Concrete Pipe.

THE QUESTIONS

As follows were sent by the City Engineer of Ogden in November 1910, to various City Engineers throughout the United States. Replies as given herewith were received by him and copies of same may be seen at writer's office.

Mr. City Engineer:

Dear Sir: The City of Ogden is contemplating extensive sewer work next year and we are investigating the durability of Cement Concrete Pipe. In connection with the subject I am asking you the following questions. Thanking you in advance, I am,

Yours respectfully,

(Signed) Wm. M. Bostaph,
 City Engineer of Ogden.

THE ANSWERS

	Has your City any Concrete Pipe now in use for Sewers?	Has it been necessary to replace any C. P. because of disin- tegration?	How much C. P. have you in use for Sanitary Sewers?
Buffalo, N. Y.....	Yes	No	About ½ mile
Bridgeport, Conn.....	Yes	No	About 70 miles
Columbus, Ohio.....	Yes	No	1 ½ miles
Duluth, Minn.....	Yes, over 20 years	No	About 5 miles
Galveston, Texas.....	Yes	No	About 4 miles
Minneapolis, Minn.....	Yes	No	32 ½ miles
Milwaukee, Wis.....	Yes	No	More than 150 miles
Louisville, Ky.....	Yes	No	Not known
Indianapolis, Ind.....	Yes	No	25 miles
Grand Rapids, Mich.....	Yes	No	See annual report
Portland, Maine.....	Yes	Yes, about 1000 ft.	16 mi., over 21 yrs.
Newark, N. J.....	Yes, combined syst'm	No	Not given
Worcester, Mass.....	Yes	No	Many miles
Wilmington, Del.....	Yes	No	1 ½ mi., more bldg.
Superior, Wis.....	Yes	No	About 5 miles
Tacoma, Wash.....	Yes	No	10 miles
South Bend, Ind.....	Yes	No	About 2 miles
Portland, Ore.....	Yes	No	5 miles
Reading, Pa.....	Res	No	Not given

As the result of this careful inquiry Mr. Bostaph recommended, and the city of Ogden adopted, an ordinance admitting Concrete Pipe to its Sanitary Sewer system. Salt Lake City was already using it. Portland Oregon, Vancouver, Tacoma, Everett and other Northwestern Cities are now using it in great quantities for sanitary sewers, large and small. Nearer home, Concrete Pipe has recently been adopted and used for sanitary sewers, by Modesto, Watsonville, Oakland, Albuquerque, Monrovia, Phoenix, and other cities, after hard opposition by the Clay Pipe Trust.

When the Clay Pipe interests threw the San Diego controversy into the Superior Court and attempted to have the City Council restrained from signing contract for Concrete Pipe, several interesting affidavits were prepared to show the real value of Concrete Pipe in sewer use. The following are extracts from some of them.

June 15, 1911.

F. C. Finkle, for 24 years a well known hydraulic and civil engineer swore as follows:—

"In the years 1889 to 1893 I was City

Engineer of San Bernardino. I found in use a Concrete Pipe Sewer 2500 feet to 3000 feet long which had been built and in constant use since about 1879 and up to 1907 (28 years). I had frequent occasion to make personal inspection of various parts of this sewer and discovered from my observation that the same was in an excellent state of preservation and wholly unaffected by the acids or gases in the sewage. From my knowledge of the subject and personal and practical experience that I have had, I without hesitation give it as my opinion that Cement Concrete Sewer Pipes when properly constructed *are superior to any other material.*

Subscribed and sworn to by,

F. C. Finkle."

June 14, 1911.

F. C. Bickenback deposed, "That he has been for more than 20 years past practicing civil and consulting engineer and for nine years preceding 1907 was City Engineer of Butte, Montana. That practically the entire sewer system of that city is constructed of Cement Concrete, there being in 1907 about 25 miles of such Cement Sewer Pipe in use. That into

this sewer system is deposited the ordinary sewage of cities, and also on account of the mining operations carried on in Butte the said owners carry a *considerable quantity of acids and chemicals* from assaying and smelting operations but nevertheless the entire sewer system with the exception of some few minor portions where improper materials had been used, withstood the action of the acids and gases in the sewage in a manner entirely satisfactory. Affiant had constant occasion to inspect the sewer system and he found the same in an excellent state of preservation, and from the experience he has had in connection with the construction of sanitary sewer systems, *his preference is in favor of Cement Concrete Pipes for that purpose rather than glazed vitrified pipes.*

Subscribed and swore to by,

F. C. Bickenbach."

Los Angeles, June 15, 1911.

"Thomas J. Shea being duly sworn says:—That he has followed the business of general contracting in many parts of the United States, and has constructed Cement Concrete Sewers in New Orleans and has particularly observed the construction of Cement Concrete Sewers in Chicago, St. Louis, Louisville, Chattanooga, Newark, Elizabeth, and Brooklyn. Affiant says that Cement Concrete sewers are successful and are as good as sewers constructed of any other material, and there is no question but what properly made concrete is an entirely suitable material for the construction of sanitary sewers.

Affiant has seen failures of Vitrified Pipe sewers and has himself removed a sewer at Quincy, Ill. built of Blackmer and Post's well known high grade Vitrified Pipe, and replaced this sewer with brick. This sewer had failed and disintegrated through the action of sewage from laundries, but he found that *where*

the Clay Pipe had failed the cement joints were in perfect condition and unaffected by the sewage, and the only failure was that of the Vitrified Pipe.

Thomas J. Shea."

Los Angeles, June 16, 1911.

"Frank Gillelen deposes and says on oath: That he has been a partner in the firm of Olmsted and Gillelen for the past six years, said firm being engaged principally in sanitary sewer engineering and has constructed fifteen sewer systems in the United States. Affiant has also constructed many Cement Concrete Septic Tanks, and has made a special study of the materials out of which sewers should be constructed and has investigated many sewer systems with a view to determining their sanitary condition.

After having made such study and investigation affiant has specified Cement Concrete for this purpose and believes it is *as good as glazed Vitrified pipe, or any other material*, out of which sewers are constructed in this country, and that said Cement Concrete is a safe and suitable material for sewers. My firm is now having the Outfall sewer of Monrovia built of Cement Concrete and also 10 miles of the \$300,000.00 sewer system of Phoenix, Ariz. Affiant has also received the following recent letters on this subject.

"City of Decatur, Illinois, Apr. 4th, 1911.
Messrs. Olmsted & Gillelen,
Los Angeles, Cal.

Gentlemen: Replying to your letter of recent date, relative to Decatur's concrete sewers, will say that we have four (4½) miles of concrete sewers from 60" to 36" in size. Part of these sewers have been in use four years, and from examinations made recently, the sewers are in splendid condition, no disintegration having taken place whatever.

The inside surfaces of the sewers have coated over with a kind of slime, and no erosion is perceptible at all.

Concrete Sewers properly constructed, in my

judgment, are as good as any other kind, especially for sizes over 24 inches.

Yours truly,

(Signed) A. B. Alexander,
City Engineer."

"DEPARTMENT OF PUBLIC" WORKS,

Office of City Engineer,

Masonic Building,

Pawtucket, R. I., April 5th, 1911.

Messrs. Olmsted & Gillelen,

Los Angeles, Cal.,

Gentlemen: Replying to yours of the 30th regarding the use of concrete in sewer construction I would say, that we have built more or less sewers of this type since 1904 and have found nothing in our experience that would change our favorable opinion regarding this form of construction. There have been no cases of disintegration in our sewers, that I know of, and no erosion in the storm sewers.

Yours truly,

Geo. A. Carpenter,
City Engineer."

"ENGINEER'S DEPARTMENT, CITY HALL,

Minneapolis, Minn., April 6th, 1911.

Mr. Frank Gillelen,

Los Angeles, Cal.,

Dear Sir:—Your letter of March 30th just received, and in answer to your questions, will state; that we have not been able to detect any disintegration in our concrete sewers.

The erosion is hardly perceptible as yet, and in that respect compares favorably with our best brick sewers.

Some of our Concrete sewers have been in use for 28 years and are practically in as good condition as when built.

Hoping the above information will answer your questions sufficiently, I am,

Yours truly,

C. Hstrup, Sewer Engineer."

"CITY OF WORCESTER, MASSACHUSETTS

SEWER DEPARTMENT

April 10th, 1911.

Mr. Frank Gillelen,

Los Angeles, Cal.

Dear Sir:—Our experience with Concrete Sewers, while not covering a very long period, has been very satisfactory.

We have not experienced any trouble from failure or from erosion.

Very truly yours,

Matthew Gault,
Superintendent of Sewers."

Affiant says that while concentrated acid will affect Cement Concrete, that there is not enough acid in ordinary sewage to do so; that acids in sewage are so diluted that there is no danger of their attacking Cement Pipe at all. That the *total organic content* of the average American sewage is *less than one tenth of one per cent.*

Subscribed and sworn to by,

Frank Gillelen."

To save your valuable space the above affidavits have been somewhat condensed and others have been entirely omitted but they form a significant and contemporaneous testimony. We beg to trespass a little further upon your courtesy by brief references to opinions not so recent.

In the "Concrete Review" of March 15th, 1907, the eminent sanitary Engineer, Rudolph Hering declares that Concrete Pipes if properly made have strength to resist compressive, tensile and bursting strains amply sufficient for all purposes of a sewer in a large city, and are tougher than Vitrified Clay pipes.

Robert W. Lesley, a prominent engineer and scientific writer of Philadelphia, says, in the same publication, that there seems to be no question whatever that in form, cement pipes are far superior to ordinary clay pipes. As to acid, certainly sewage contains no more acid than the water used in the manufacture of paper. There sulphuric acid is used to digest wood to paper pulp and the linings of paper mill digestors are commonly made of cement.

J. P. Sherer, of the Milwaukee Board of Public Works, said, in an address before the Northwestern Cement Products Association, held in Chicago, in 1907.

"Out of 300 miles of sewerage in Milwaukee, about 200 miles is made of Concrete. In all places where changes have been made necessitating the replacing of

sewers built in the early history of Milwaukee, we found the Concrete Pipe to be intact and very much harder than when put there. *Our engineers recommend Concrete pipe to be the best for conveying sewage to be had.* The greatest enemy of Cement Pipe is the Vitrified Pipe manufacturer. Years ago we had a big fight on our hands and won out and today if there is any preference shown it is for Cement Pipe."

Baldwin Latham in his work on Sanitary Engineering, published in 1873, states that he has seen Cement Sewer Pipes that had been used for 35 years, and they were as sound at the end of that period as when laid.

Hansen in his work on Cement Pipe, published in Chicago in 1909, states, at pages 20 and 21, that the modern sewers of Paris and throughout Europe are to a great extent made of Cement Concrete. The above work is published by the Cement Era Publishing Company in 1909.

On page 21 also, this author states that in 1906 in the City of Brooklyn, Concrete Pipe sewers and Vitrified Pipe sewers were exposed during certain excavations and in all cases the Concrete Pipes were intact, while the Vitrified Pipes were often found cracked or broken. This sewer was laid over 45 years previously.

Reference is also made to a publication of the American Society of Civil Engineers entitled "The Water Works and Sewage of Monterey, N. L. Mexico," by G. R. G. Conway, an eminent Scotch Engineer and author, who has written extensively on the subject of sanitary sewerage, in which will be found an exhaustive description of the subject of Cement Concrete for various purposes, and in which discussion Mr. James D. Schuyler, George T. Hammond and other eminent engineers took part, and particularly on page 573 remarks of Mr. Ham-

mond with respect to the use of Cement. Concrete Pipe for sewage purposes will be found to the effect that the use of Concrete Pipes for sewers seemed to be growing in favor, and that it was not surprising in view of the many improvements made in their design and manufacture. He also referred to his experience with Concrete Pipe in long service in the sewer system in Brooklyn, N. Y., and declared that he was led to believe from that experience that at Monterey *the whole sewer system might with advantage have been built of Concrete Pipe.* He referred also to 450 miles of Concrete Pipe Sewer in use in Brooklyn, and made a point especially of the fact that the cost of repairs and replacing the pipe over a period of years was just as great in the case of Vitrified Clay Pipes as in the case of Cement Concrete Pipe, and on page 574 he made a detailed statement of the various advantages of Concrete Pipe, and among other reasons beside its cheapness, both in construction and maintenance, he states that, *it is not affected by ordinary sewage.*

In the same discussion after replying to the remarks of Mr. Hammond with respect to the use of Cement Concrete for various purposes, Mr. Conway on page 582, had this to say regarding the use of such pipe for sanitary sewers.

"Regarding Mr. Hammond's summary of the advantages of Concrete Pipes for sewer construction, *the writer is in entire agreement.*"

In the Cyclopedia of Civil Engineering published by the American Technical Society in 1909, Anson Marston, Dean of Division of Engineering, Iowa State College, says:

"Ever since the early use of pipe sewers in the latter half of the 19th century, cement pipe has been used to some extent for sewers, and recently

there seems to be a revival and extension of its use. Experience has shown that cement is a very suitable material for making sewer pipe, and that when Cement Pipes are well made of first class materials, give excellent satisfaction for sewers and are durable *and not disintegrated by the sewage*. Much poor Cement Pipe has been made and in this way Cement Sewer Pipe has gained a bad reputation in many localities."

A. H. Talbot, Pres. University of Illinois says: "I know of no authority for the statement that well made Concrete Sewers disintegrate from the effect of ordinary city sewage."

The foregoing testimony which might be multiplied almost indefinitely surely demonstrates that the question of disintegration is very far from being so one sided as the clay pipe people would have the public believe. On the contrary we have shown that concrete pipe has much important support in authoritative opinion and experience, so much, in fact, as to fully entitle it to the position it claims as a safe and suitable material for the conveying of sewage.

If the cement mortar and cement concrete are unsafe in contact with sewage, why are septic tanks which store sewage in concentrated form, built the world over of concrete? And what about the clay pipe sewers with their joints made of cement mortar and their manholes and flushtanks built and lined with cement? The clay pipe people reply that the mortar in sewer pipe joints is all on the outside, but anyone who has ever seen the inside of a sewer knows this is not true.

"Glazed Cement Pipe" made by machinery is now produced which shows an absorption of less than 4% and which stands 75 to 100 lbs. water pressure without even sweating. How much of the clay pipe that is daily sold

for sewers could make such a showing as this? Is such a product to be turned down by progressive engineers because of an old prejudice based upon the crude pipe made years ago, and fostered solely by competing commercial interests?

In the following important respects, Cement Concrete Pipe is unquestionably superior to any other made:

Uniformity of mixture: Clay mixtures are not uniform and are varied even in the same plant according to the views of the superintendent.

Concrete Pipe is made of cement, sand, gravel and water of known quality and definitely specified quantities.

Warping: Clay will not stay straight while drying and burning. The engineer on a sewer has to fight for straight pipe all the time.

Concrete Pipe is made as straight as a gun barrel and stays so.

Roundness: A large percentage of clay pipe is out of round. So well is this understood that this is unavoidable, that all sewer specifications provide for the permissible deviation from a true section. This is a serious matter because it interferes with the usefulness and capacity of the sewer and also obliges the contractor to match and fit his pipe before laying.

Cement Pipe, made by machine is exactly uniform in section. Each pipe is perfectly round and the annular space for mortar is always the same. It can be laid more rapidly than clay pipe and produces a conduit as perfect in section as a cast iron pipe and much smoother.

Fire Cracks, Blisters, etc.: These are plainly to be seen in the clay pipe along the bank of any sewer trench and specifications describe how much of these inevitable defects will be permitted.

The engineer draws the line and the clay pipe manufacturer continually

fighths to get over it, because his "cull" pipe would pull him out of business.

No such compromise with perfection is necessary in the case of machine made cement concrete pipe. Every pipe is physically perfect and stays so.

Imperfect Burning and Glazing: This is the clay pipe man's bete noir, which he can never escape. Do the very best he can, and from every kiln comes the varying percentage of underburned, overburned and imperfectly glazed pipe. As much of this as he dares to send, goes onto the sewer job, and, depending on the complacency of the inspector, goes into the sewer. Yet the clay pipe men make their big fight on the virtues of perfect vitrification and perfect salt glazing. As an ideal, this is very fine but everyone who has observed at all, knows that as a matter of fact much underburned and therefore poor and unsafe clay pipe is sold in every city. And the vital inside glaze on which so much stress is very properly laid, is missing or imperfect in a large percentage of the clay pipe laid. Every engineer knows this is true.

A machine made cement pipe is made uniform in this particular as in others. It is scientifically and mechanically pro-

duced and the inside finish or glaze can be exactly regulated to suit conditions, and then kept so indefinitely. The millionth pipe will be just like the first.

In conclusion, every engineer can know of scores of large cities here and in Europe which have had a long and satisfactory experience with cement concrete sewers. He can learn that the value of such a sewer depends upon its being properly made, and it only remains for him to ascertain the conditions under which success has been attained.

Concrete sewer pipe must fight its way against the natural and desirable conservatism of engineers and their tendency to cling to a type of construction which precedence justifies, even though something better and more economical is being developed. But engineers are alert as well as conservative. Facts are supporting new theories, and experience is destroying old fears. In a few years properly made concrete will hold a secure place as a sewer material and its safety against disintegration will no longer be argued. It is already not a matter of doubt among those who have informed themselves and soon it will not be questioned anywhere.

Arthur S. Bent Los Angeles, Sept. 5, '11



RATES FOR GAS SERVICE

BY C. L. CORY

In all probability more money has been expended in the various states and cities of the Pacific Coast during the past decade, either directly or indirectly, in connection with litigation or other phases in determining the rates for gas service, than has been the cost, in the same territory, of all experimental

and other related scientific and engineering work of improving the methods and reducing the cost of the manufacture, distribution and sale of gas. Certainly, there is no problem connected with the gas industries more important than that of rates. There is a spending

* Delivered before the Nineteenth Annual Convention of the Pacific Coast Gas Association, Oakland, Sept. 19th to 21st, 1911

and receiving side to every organization. It is the difference between what is spent to provide a commodity and the amount for which the commodity in the aggregate is sold which establishes the desirability of the business. Unlimited commendation is due the gas engineers of the Pacific Coast for the work they have done in recent years to improve the processes of gas manufacture, including all of the notable advances in high pressure distribution and improvement of service, as well as the increased economies and reduced cost of production. It is but natural, therefore, that we should be equally interested in the consumption and use and especially the proper rates to be charged for gas, not only from the standpoint of the manufacturing companies, but quite as much must the consumer's position in the matter be given due consideration.

†The term "public utility" has been defined as meaning and embracing each corporation, company, firm, individual and association, such as express, telephone, telegraph, sleeping car, freight-line, equipment, electric light, gas, natural gas, pipe line, waterworks, messenger, signal, union depot water transportation, heating and cooling companies; street, steam, suburban and inter-urban railroad companies; also any plant or property owned or operated by such companies, corporations, firms, individuals or associations.

It is such companies as above indicated that provide service to the public, and the rates for such service should be based primarily upon the cost of providing adequate and satisfactory service. To determine this cost is many times a difficult task, and especially so when the devices and system required to provide the service are not fully developed and

standardized. As an illustration, the rates for freight and passenger service between San Francisco and Los Angeles, whether by steamer or by rail, have been established for such a length of time that it is not a difficult matter to decide upon the reasonableness of such rates, and, therefore, rates may be established that are more or less permanent and not subject to material revision from year to year. However, to determine adequate freight and passenger rates between these cities using the automobile or the aeroplane would be exceedingly difficult, if not impossible. However, it is not to be concluded that in future years, service, both passenger and freight, with the newest aerial devices for transportation may not become so well established, reliable and satisfactory that rates of service might not be readily determined.

The business of manufacturing and supplying gas has been very thoroughly standardized, although progress is constantly being made in the methods of manufacture as well as the increased economies in distribution. High pressure systems have been introduced in recent years. The methods of gas manufacture from California crude oil on the Pacific Coast have been perfected within a comparatively recent date. As compared with many other public utility enterprises, however, the gas business has been established so long that the determination of the cost of service is comparatively easy.

The cost of delivering gas to the consumer necessarily embraces the determination among other things of a fair valuation of the plant that is devoted to public use, the gross earnings under any given set of rates and the reasonable operating expenses when depreciation of the physical property and ade-

† Laws of Ohio, Langdon Act, 1910, Page 470.

quate returns on the investment are included.

The general information necessary in order to arrive at the proper rate for gas service may, in general, be subdivided as follows:

1st. The valuation or appraisal of the plant used for the manufacture and distribution of gas.

2d. The annual cost of operation, including a complete segregation of all accounts set forth in such a manner as to indicate the different operating costs per 1000 cubic feet of gas manufactured and sold.

3d. A statement of the quantity of gas made and sold for a number of years, preferably not less than five, and the total revenues received each year from the sale of gas.

Valuation

There are a number of fundamental principles involved in obtaining the valuation of a gas plant and system to be used in determining a proper rate for gas service. It is quite as important that corporations themselves should determine for each year the valuation of the system upon which a return on the investment is to be earned as it is for this valuation to be determined by any public body, whether only incidentally or directly concerned, with the fixing of rates.

The original cost of construction, the cost of reconstruction or reproduction new, the cost of reproduction new less depreciation, the present value, the assets and liabilities taken as a whole, the capitalization, the bonds and stock outstanding, and the gross earnings and operating expenses are all elements that should be considered in determining the valuation of a public utility for rate fixing or other purposes. Each of these elements constitutes evidence of what is

a fair value. The original cost, the cost of reproduction new and the present value bear a very close relation to the physical property of the plant and are, therefore, most usually considered of the greatest importance in determining the proper valuation. Which of these three elements gives the best indication of the value will vary in each individual case.

The original cost can, if all records of construction are available, be usually determined by what is known as the historical method. The conditions under which the construction of the system was carried out, whether all done at once or extended from year to year as the growth of the business required, will be covered in this method of determining the original cost. When proper charges only are included and no mistakes have been made, for which the builders may be properly held responsible, the original cost represents the investment that has actually been made in the physical property of the plant.

The rapid growth of many systems, however, and the rapidity with which changes have been made, coupled with inadequate records, make it many times practically impossible to determine the original cost with any degree of reliability. Much depends upon the manner in which accounts and records have been kept. In order to be of value they should show the actual cost of the different parts of the plant, segregating labor and material, the cost of engineering superintendence, management, and administration, the amount that has been allowed as interest on the capital during the construction period, the cost of financing, which will include the discount at which bonds were sold, the basis upon which stock has been issued or sold, all promotion expenses and similar items. It is not difficult to imagine

records which would give the above information, but I venture to say that most rare is it that the original cost of a gas plant operating at the present time may be obtained entirely in such a complete and satisfactory manner.

Moreover, the original cost even when determined in full detail may not be the valuation upon which reasonable returns should be allowed. It is a question of equity between owners of the plant on one hand and the customers on the other. The owners are entitled to a reasonable return upon what they have invested, while the customers should not pay rates for service that will yield more than an adequate return upon the investment necessary to supply such service. If the plant has been built when prices were abnormally high and money has been lost through lack of reasonable skill, excessive promotion fees and discounts, private understanding between the builders of the plant and the contractors, the original cost may be decidedly greater than the valuation on which the investors should be allowed to earn.

Conversely, it may be that the plant was constructed when the prices for labor and material were excessively low, or a great portion of the plant may have been obtained through failure of previous owners to successfully carry on the business, due either to temporary financial difficulties or what has been more common, great strides in the method of manufacture, resulting ultimately in foreclosure. In such a case the original cost would hardly be a fair figure upon which to base the valuation for rate fixing purposes, as the foresight and enterprise of the present owners certainly justifies some regard.

The original cost is so rarely available that the cost of reproduction new of the

plant usually must be determined. A great deal of engineering knowledge and detail work is necessary to obtain this result. Invariably, a complete inventory of the physical property is the first step required. The only satisfactory inventory is one obtained as a result of actual inspection and enumeration, aided, as much as possible, by all the records available, and supplemented by such additional information as may be had from the various heads of departments and other employees of the company. Such an inventory should include for each different part of the property the amount of labor and material required to provide ready for operation each element of the completed plant. The next step consists in obtaining from all data obtainable a suitable price per unit, not only of each element of the property, but the labor and material required to install the devices in position ready for operation. It is well in determining such unit prices to take a period covering at least five years and obtain the average in this manner. The total and average cost of the labor and material that has entered into the plant ready for operation is thus obtained.

Inventories

Inventories of the actual physical property which taken together go to make up a modern gas plant and system should include the following:

- Real estate.
- Buildings.
- Gas works, including holders.
- Street mains.
- Services.
- Meters, regulators and lamps.
- Furniture and fixtures.
- Automobiles, motorcycles, etc.
- Stable equipment.
- Tools.
- Supplies.
- Working capital

Real Estate

A complete list of all real estate used wholly or in part for the purpose of the manufacture and the supplying of gas should be included in the inventory. The value placed upon this real estate should be determined in so far as possible by actual sales of property in the vicinity of the real estate in question when used for a similar purpose. The purpose for which the property is used must always be taken into consideration. Disinterested real estate men are usually able to give information leading to a rational decision in such matters. Unfortunately, assessments for taxation purposes are not of material assistance in appraising such real estate. On the other hand the actual figures at which adjacent property is sold are rarely available.

When a gas company has real estate not actually in use but is holding it for future occupancy the question naturally arises should such real estate be included in arriving at the valuation of the plant for the purpose of determining the proper rate for the sale of gas at any given time.

In arriving at a conclusion in this matter, it is best to proceed upon the principle that it is proper to include all property actually required and used in the carrying on of the business at the time in question and not to include such real estate not required or used on the date the valuation is made. However, at some later period when the real estate is actually put to use and occupied by buildings and equipment, that are a part of the operating system, in arriving at the valuation, there should be added interest and taxes during such time as the investment in such lands has been tied up but not productive. On any other principle, customers of today would pay a rate for service in excess of what they

should and customers of the future may pay relatively less and thereby benefit unduly.

Buildings

All of the buildings owned by the company as a part of its operating system should be included in the inventory and so segregated that it will be possible to separate the structures such as office buildings, etc., from the structures required as a part of the manufacturing plant. This should be done in order to obtain the cost of the manufacture of gas as delivered to the holders separate from the general expenses connected with the operating of the property usually connected with the expense of the general offices of the company. The inventory costs of all buildings are usually best obtained from the plans, specifications and contracts and other records of the company. The condition of the buildings in general usefulness and probable future life should be taken into consideration in determining the probable value based upon original cost, cost of reproduction new and present value.

Gas Works

The gas works inventory must include besides buildings all of the equipment necessary in the manufacture, metering and storing of gas, such as boilers, blowers, compressors, generators, exhausters, holders, heaters, pumps, piping, purifiers, scrubbers, and miscellaneous equipment. The date of purchase or contract and the date when installation was commenced and completed as well as the type of apparatus and by whom manufactured, should be included as a part of the inventory. When possible, the cost of each element of the entire manufacturing plant ready for operation segregating labor and material is desirable.

Street Mains

An inventory of street mains is best obtained by tabulating and mapping from work reports all installations and removals for as long a period as records are available. Scaling street mains from maps in order to obtain the aggregate length of the various sizes should only be resorted to when the actual records of installation are not available. The size of all street mains including fittings and accessories of every character and classified as to the material used, such as wrought iron, cast iron or casing, should be included in the inventory. In a similar manner the cost of replacing the street surface in the various kinds of paving should be determined from the most recent records available for such work.

The item of paving in determining the value of underground street mains and services has been variously considered. Every legitimate expenditure in adapting the utility to the progress and community growth, even if this involves the removal of the plant from one locality of the city to a distant and more re-

mote location, is a proper charge to construction. All expenditures for putting down pavement by the company as required by the city or the cost of cutting through such pavement for extensions and construction purposes, and its replacement, are unquestionably proper capital charges. However, it is a question whether a gas company may properly capitalize the expense of municipal betterment which it has not borne and when such benefits to the gas company are only incidental and can only exist from the standpoint of the cost of actually reproducing their underground system, after the street has been paved, when as a matter of fact the existing underground mains and services were laid before the paving was actually put down. The cost of such paving is not a proper element of value when the cost of laying such pavement has not been paid for by gas company nor any expense incurred therewith, providing of course that all costs borne by the company of changing the grade or depth of underground mains and services, in order to adapt them to conditions required for paving by the city, are included in the capital account.

(To be continued)

THE NEW MUNICIPAL REPORT

BY WILLIAM DOLGE, C. P. A.

Among the very interesting and important laws passed at the last session of the legislature, is Chapter 550, approved April 21st, 1911. This act requires the compilation and publication of reports of the financial transactions of the several counties and municipalities of the State by the controller. It is the first real step toward the adoption of a uniform system of municipal accounts, and as such deserves the earnest attention and co-operation of all municipal officials and employees.

The full text of the Act is as follows:—

SECTION 1. The State controller is hereby directed to compile and publish annually reports of the financial transactions of each county and municipal corporation within the state, together

with such other matters as said controller may deem to be of public interest. Such reports shall be made in the *time, form and manner* prescribed by the said controller.

SECTION 2. It shall be the duty of the officers of each county and municipal corporation having charge of the financial records thereof to furnish to the controller in the *time, form and manner* required by him, full and true reports of all the financial transactions of such county or municipal corporation during the fiscal year next preceding the time of the making of such reports.

SECTION 3. Any officer who shall knowingly make a false report or shall refuse to make the reports required shall be guilty of a misdemeanor.

SECTION 4. In case reports are not

made in the *time, form and manner required* or there is reason to believe that any report is false or incorrect, the controller shall appoint some qualified accountant to make an investigation thereof, and to obtain the information required. The accountant appointed shall report to the controller the results of investigation and a copy thereof shall be filed with the legislative body of the county or municipal corporation, the accounts of which were so investigated. In case a similar investigation has to be made of the accounts of any county or municipal corporation for two successive years, a certified copy of the results of the investigation last made shall be transmitted to the grand jury of the county so investigated or in which the municipal corporation so investigated is situated.

SECTION 5. The sum of two thousand dollars, or so much thereof as may be necessary is hereby appropriated out of any moneys not otherwise appropriated to be expended by the controller for the purpose of carrying out the provisions of this act.

We owe much to the State Controller, Honorable A. B. Nye, for valuable statistics gathered by the Controllers office. Last year municipalities were called upon to make such a statement and the data then gathered appeared in the Pacific Municipalities. This year the Controller has had a form of report prepared which classifies and segregates receipts and expenditures upon the functional basis, following as closely as possible the classifications used by the Bureau of the United States Census, and the National Municipal League. This classification, as the readers of this magazine know, has also been adopted by the California League of Municipalities.

Particular attention is invited to the fact that whereas formerly there was some question as to the legal right of the controller to require these reports, this doubt has been removed by Section One of the Act. This section makes it mandatory for the controller to compile and publish annually the reports of the financial transactions of each municipal corporation, and provides that such reports shall be made in the time, form

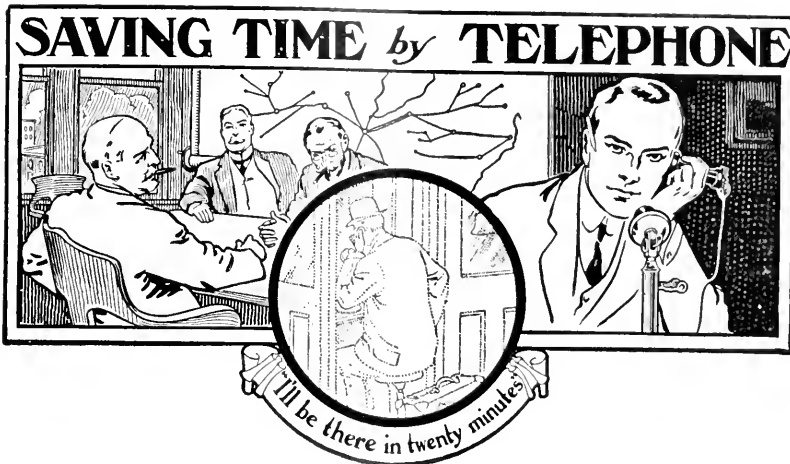
and manner prescribed by the controller.

Section Three makes it a misdemeanor to refuse to make a report, or to make a false report. In Section Four, the controller is authorized to engage a qualified accountant to prepare a report if the municipality fails, and while no direct penalty is provided for failure to make such report, the controller is instructed to transmit the report of the accountant's investigation to the Grand Jury.

In line with the municipal accounting reform that is sweeping over the country the new report form is more extensive than any previous report required and will no doubt cause many an auditor and city clerk anxious days in its preparation. The writer ventures the opinion, however, that the controller's office will judge leniently all the reports submitted complete or incomplete and will not demand the impossible. In other words, the report indicates the manner in which the accounts should be maintained in order to present statements of administrative value to the city officials. Certain towns and cities of the State that have recently adopted the new classifications will have no difficulty in preparing the report, because all they will have to do is to copy the ledger balances in the space provided. Upon the other hand, in certain other towns it will be necessary to re-classify and segregate all the demands of the past fiscal year in order to make an intelligent report.

In a year or two uniform reports should demonstrate to all municipalities the value and the economy of accounting systems that are so maintained that a comprehensive report can be drawn from the books, not only once a year, but once a month if that is considered desirable.

The forms for this report are now in the hands of the printer, and we may reasonably expect a considerable discussion of this report at the coming convention in Santa Barbara. In the mean time, the writer will be happy to render assistance, and answer questions that may arise in connection with the preparation of the annual financial report of the state controller.



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QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry.

Q. Just a line to ask if towns of the 6th class do not fix their tax rate pursuant to Act. 4044 General Laws. Sec. 3 of said act provides that on the first Monday of October the board shall fix the tax rate. Heretofore this town has always fixed the rate on the first Monday of September. Kindly advise me by return mail.

A. Replying to your inquiry of Aug. 29th will say, that Act 4044 of the General Law provides that municipalities of the 5th and 6th class may have their town taxes collected of the County officials if they prefer. Some cities avail themselves of the provisions of this

Act, but many of them do their own collecting of municipal taxes. We understand that in most cases where the County officials collect the tax for the small towns under the provisions of this Act the usual charge is about 10 per cent for collection.

This Act is not mandatory and you are not supposed to make use of it unless the Board should decide to have the County officials do the tax collecting for the town; if the trustees should come to the conclusion that it would be better to have the county officials collect the town

taxes instead of having a tax collector of their own collect the town taxes, you must pass on ordinance according to Section 1 of the Act. However, if you desire to have your own tax collector and do your own collecting of town taxes you pay no attention to this Act.

Q. In a city of the sixth class with about 5,300 population the Gas concern has been operating for a number of years here without any franchise. The Board of Trustees has started in to fix the rate of gas to the consumer. Now they come in and want a franchise. They claim they have franchises everywhere else of from 35 to 50 years.

If you have any information as to what is now considered to be the most desirable term for a franchise, or whether one is advisable at all or not, the writer would very much appreciate any suggestion you might make.

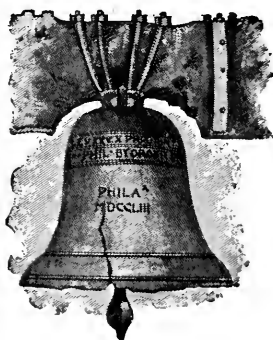
A. Yours of Sept. 20th in relation to the gas franchise plan received. You doubtless understand that under the provisions of the State Constitution, as it now reads, any gas company has the

right to lay pipes in cities for furnishing illuminating gas; therefore it has not been necessary for any gas company to obtain a franchise from any municipality, and very few franchises have been applied for. I doubt the power of the Board of Trustees to grant such a franchise at the present time.

A proposed amendment to the Constitution is now pending which will operate to repeal the perpetual franchises granted by the Constitution, and to vest in the municipalities the right to grant such franchises. I would suggest, therefore, that you take no action in the matter until after the election next month and see where you stand. If the amendment is adopted I would suggest that you investigate the matter of what are called indeterminate franchises, which is the form recommended by those who have given the greatest consideration to this question.

Phones

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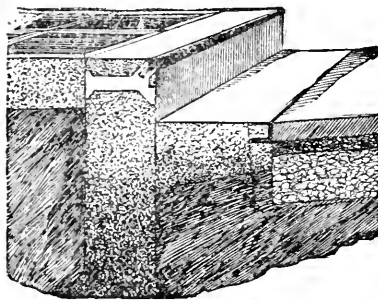
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Architects are invited to read pages 242 and 243 "Sweet's Index."

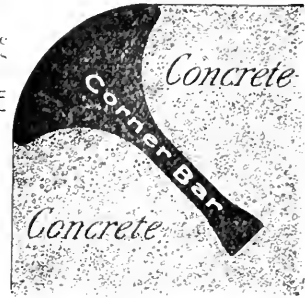
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Q. The trustees are contemplating bonding the Town for a municipal water plant, and would like to have some lines of procedure; also some ideas as to how much water they need, the size of a pump they want, and how to pipe town, etc. Also in case at the time we were incorporated it was not done in a legal manner and we voted a bond that did not suit some people, could they by contesting our incorporation make us disincorporate.

Please inform us when our annual dues to the League are due.

A. Responding to your inquiry of Aug. 28th relating to the procedure necessary for the issuance and sale of municipal bonds would reply as follows:

First, the proceedings must be taken strictly in accordance with the provision of the Act of the Legislature known as Act 2371 of the General Laws, commencing with the passage of a resolution

followed by an ordinance calling a special election, etc. It is necessary that the proceedings be conducted with the utmost care, otherwise you will have all your trouble for nothing; it is the custom of most small municipalities contemplating a municipal bond issue to engage the services of attorneys who are specialists in this line of work, and will cost you in the neighborhood of \$250.00, which expense, however, will be more than covered by the premium on the bonds.

The actual construction of the works, pumps and distributing pipes must be done in accordance with plans and specifications prepared by a competent engineer, this will also cost you not less than \$250.00 and perhaps more, but this expense will most likely be covered

also by the premium on your bonds. The Sonoma bonds drawing interest at 5% recently sold for a premium of \$530.00 and your bonds should do proportionately as well.

The foregoing expenses are absolutely necessary and cannot be avoided. If there were any defects in the proceedings relating to your incorporation they were probably cured by the Validating Acts passed by the last Legislature.

We will take the liberty on your behalf of notifying a few responsible engineers who make a specialty of installing municipal water systems, and they will probably take the matter up with you by correspondence and notify you of their terms.

Trusting the information covers the points in which you were interested, we remain,

Q. If a municipality should fix a certain rate to be paid to a lighting company for street lights and the time to have the lights to burn and the price does not suit the lighting company and they refuse to give the lights under such conditions, what procedure should the city take, or what can be done?

A. Yours of August 29 at hand.

The letter was mislaid, else would have sent answer earlier.

A light company comes into a town and lays pipes or strings wires under and by virtue of Article XI, Section 19 of the Constitution, on condition that the legislative body of the municipality shall have the right to regulate the charges and rates of service. If they come into a town and refuse to submit to this condition and threaten to shut off the light, the proper action is to procure a writ of mandamus to compel them to serve the town and its inhabitants.

The proper remedy for the company, in case the rates fixed are too low, is to procure an injunction from the U. S. Court restraining the city trustees from putting the rates into effect.

If they refuse to serve the town by attempting to shut off the lights, we advise you to get out a writ of mandate at once.

Q. We wish to know if the trustees of the town can legally use for repairs on intake of water system part of the money on hand left from the sale of sewer farm. I will explain—

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The town voted bonds and purchased farm to distribute the water from sewer outfall. They afterwards concluded they could more judiciously and economically use septic tanks for disposal, so sold the farm, put in tanks and have money left. Can they use otherwise than for sewer extension.

A. In accordance with a special act of the Legislature municipalities have the right to transfer to the general fund any surplus left over from the bond issue. Thereafter they may use a portion of such money for any purpose desired for which money the general fund is applicable, the only necessity being that you advertise for bids in accordance with Section 874 of the Municipal Corporations Bill, in case the desired expenditure exceeds \$100.

Q. I will greatly appreciate it if you will inform me whether there is anything to prevent an electric railway company from being liable for assessments against their property for street work done under Vrooman Act.

A. Replying to yours of September 14th in relation to the liability of Railway Companies for street assessments will say, that I have been informed that there is a decision of our Supreme Court holding that right-of-way of railroads cannot be assessed under the Vrooman Act.

In respect to other property than a right-of-way, I do not know of any law that would exempt them from assessments. I would, however, refer you to Mr. S. G. Long, City Attorney of Long Beach, who has made a careful investigation of this point, and his conclusions in respect thereto should be given more weight than anything I could say. Under the Improvement Act of 1911, which is now being used to considerable extent there is an express provision covering assessments against railway property.

Q. Can a city of the sixth class exclude a

certain amount of its territory and legally continue to exist as a city if, after such exclusion it should contain less than 500 inhabitants?

A. Dear Sir:

Responding to your inquiry dated August 20th will say, that when a municipality has been once legally organized and incorporated as a city of the sixth class, it continues to exist as such a city as long as it exercises municipal functions and until it has been disincorporated under the Act of Legislature of March 26, 1895, notwithstanding the fact that in the meantime it may fall below 500 in population.

Yours very truly,

LEAGUE OF CALIFORNIA MUNICIPALITIES.



VALLEJO CITY WATER PLANT BIG SUCCESS

The gross receipts of the Vallejo water department, the only public utility now operated by the municipality, were \$78,735.99 for the fiscal year just ended as compared with \$71,360.01 for the preceding twelve months. The expenses during the year 1909-1910 were \$15,564.82, leaving a net profit for the city of \$55,796.16, and while the expenses for the fiscal year just ended were higher it is believed that the net profit will be several thousand dollars in excess of that of the preceding year.

In addition to supplying all business houses and residences of Vallejo, the municipality supplies all water used for operating the Mare Island Navy Yard, as well as for all ships which come here, while the low rate of 18 cents per thousand gallons, at which the water is sold to the Government, frequently results in water barges being sent down from here to ships anchored in San Francisco bay.

AMERICAN INGOT IRON CULVERTS

Reprint from the Daily Railway Age Gazette, March 23, 1911, issue

On the electric being built from Kansas City, Mo., to St. Louis, one of the most serious problems confronting the engineers in charge was the culvert proposition. A series of exhaustive tests were made on all forms of culvert construction and the results obtained from these tests justified the engineers in recommending

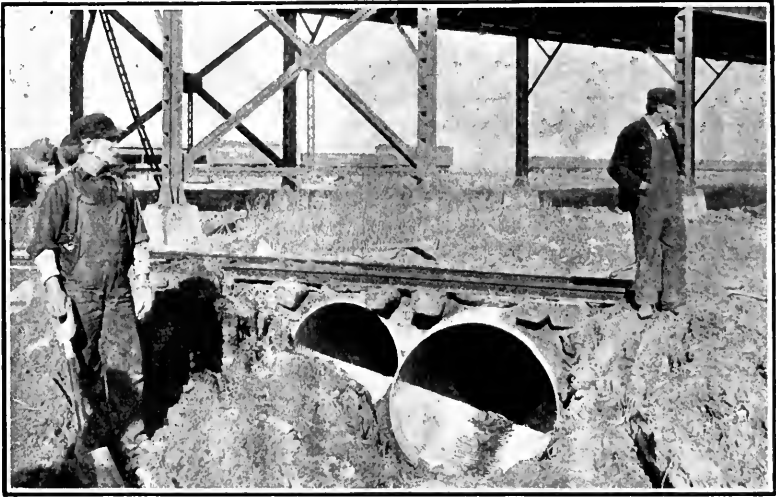


Fig. 1. American Ingot Iron Culverts in Loose Sand, for Test. St. Louis-Kansas City Electric Railroad.

the use of American ingot iron corrugated culverts for the entire work.

The cuts herewith show one of the severe service tests made on this form of culvert construction. Fig. 1 shows a 36-in. pipe and a 48-in. pipe lying side by



Fig. 2. St. Louis-Kansas City Electric Railroad Test of American Ingot Iron Culverts

side and placed directly under the ties. This, of course, is a more severe condition than the culverts would encounter in actual service; but it proved conclusively the strength of this form of culvert construction. Fig. 2 shows a 90-ton engine placed directly over these culverts. The deflection was less than $\frac{1}{4}$ in. This test convinced the engineers of the strength of these culverts.

By carefully analyzing the plates used in the construction of these corrugated culverts, it was found they were made from iron which is almost chemically pure, the analysis being as follows: Sulphur, .019 per cent.; phosphorus, .005 per cent.; carbon, .015 per cent.; manganese, trace; silicon, trace. Material of that composition will last a lifetime.

In consideration of the excellent results obtained in both the strength and chemical tests, the St. Louis-Kansas City Electric Railroad has decided to use American ingot iron culverts for all its culverts, ranging from 12 in. to 48 in., inclusive. The actual order placed amounted to over 30,000 ft. of culvert pipe. The engineers in charge highly recommended American ingot iron culverts because they are strong, durable and easy to install, and, last, but by no means least, they reduce the cost of construction.

WHAT THE CITIES ARE DOING

Lincoln has ordered 150 feet of fire hose.

Martinez will have more cement sidewalks.

Modesto has voted \$30,000 for street paving.

Ontario is preparing for more cement sidewalks.

Stockton has voted \$75,000 bonds for school purposes.

Corning has voted \$4,6000 for a new school building.

Tehachapi is contemplating bond issue for water plant.

Red Bluff will soon have a new County Court House.

Los Banos trustees have ordered more cement sidewalks.

Redondo Beach is preparing for more cement sidewalks.

Santa Barbara has advertised for bids for a suction street sweeper.

Alhambra School District is to have a one-story brick school house.

Glenn County has voted \$350,000 for the construction of good roads and bridges.

Chico is considering the construction of a septic tank as an addition to the sewer system.

San Anselmo and **Fairfax** are endeavoring to raise funds for purchase of chemical engine.

Madera is preparing for considerable street paving and construction of gutters and iron culverts.

Long Beach is considering the calling of a \$350,000 bond issue for the construction of an outfall sewer.

Redlands has passed Resolutions of Intention for the installation of more hydrants for fire protection.

Fullerton has voted \$130,000 for high school purposes, \$14,000 for bridges and \$132,000 for oil macadam roads.

Sausalito has passed Resolutions of Intention for the construction and laying of sewers in many streets.

Palo Alto is preparing for the purchase of a motor-propelled chemical and hose wagon. Bids to be opened October 2nd.

Eureka is contemplating bond issue for a sewer system. City Engineer has been directed to make a survey of the unsewered part of the city.

Emeryville will soon have a motor-driven combination fire pumping engine and hose wagon. Bids have been called for and will be opened October 2nd.

Pasadena has called for bids for the construction of a reinforced concrete viaduct along Columbia street in the cities of Pasadena and South Pasadena.

San Leandro is considering bond issue for \$40,000; \$20,000 for placing streets in good condition; \$10,000 for new city hall and \$10,000 for a fire alarm system.

Sisson has voted \$20,000 to purchase water works and water right; \$15,500 for the construction of a modern sewer system and \$1,500 to build city hall and fire house.

Richmond will hold a \$150,000 bond election October 7th for the purpose of erecting needed buildings and general improvements to the school grounds and old structures.

San Rafael is talking of a monster bond issue; \$120,000 to \$150,000 for bituminizing streets; \$5,000 for sewers; \$10,000 for dredging; \$5,000 for modern lights; \$10,000 or more for outfall sewer and other street work.

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

WRITE FOR CATALOGS

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S. F.

Asphalt Machinery

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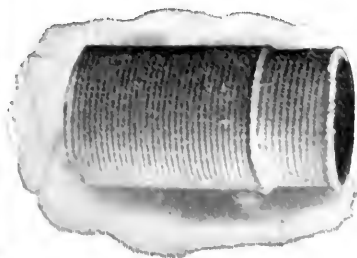
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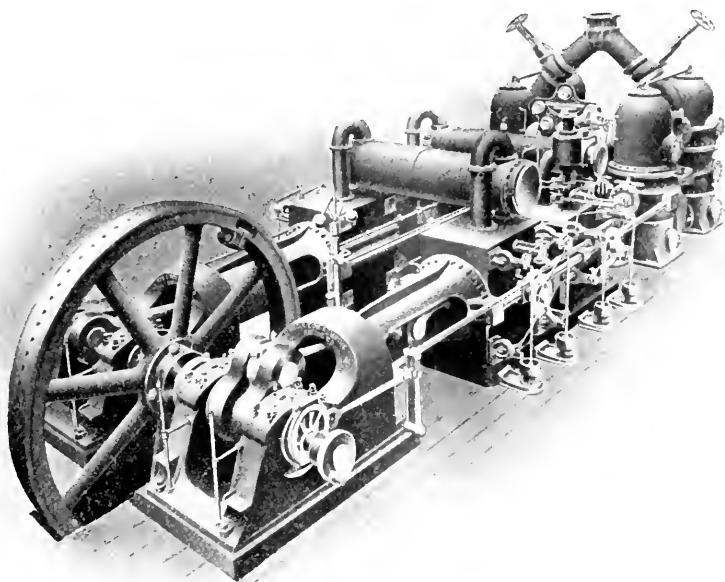
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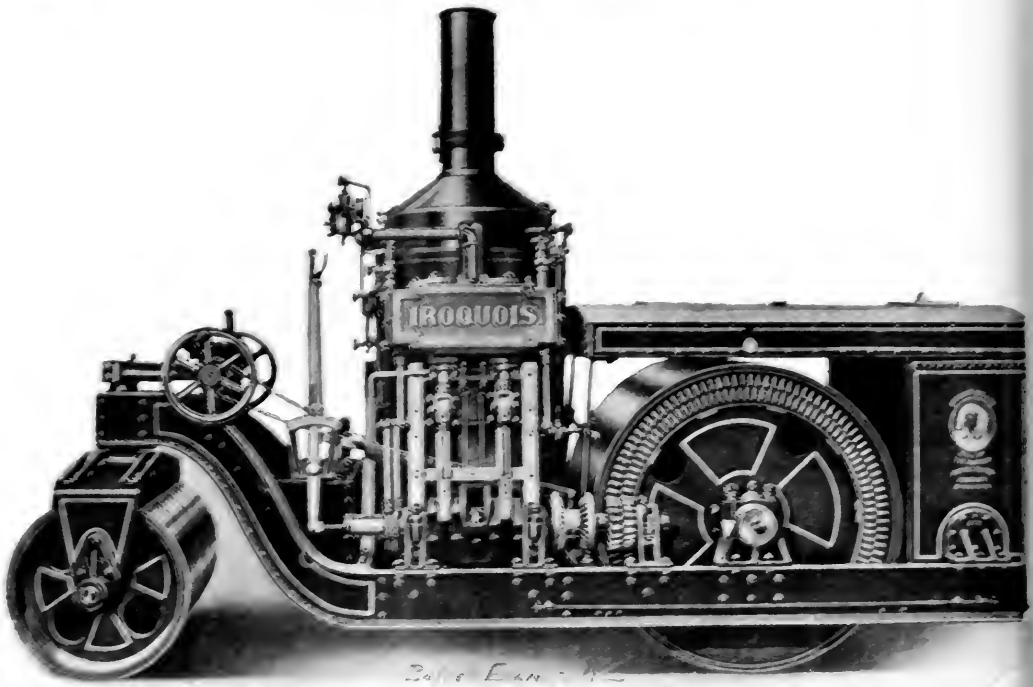
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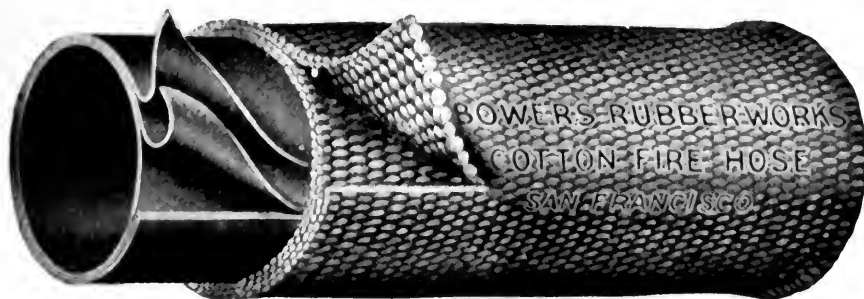
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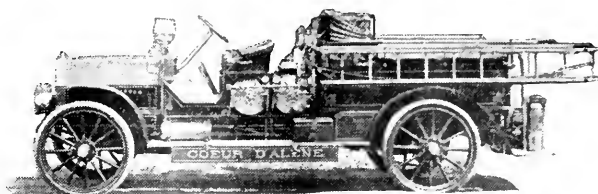
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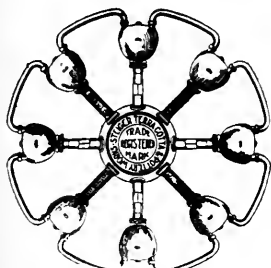
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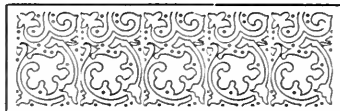
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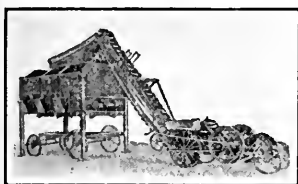
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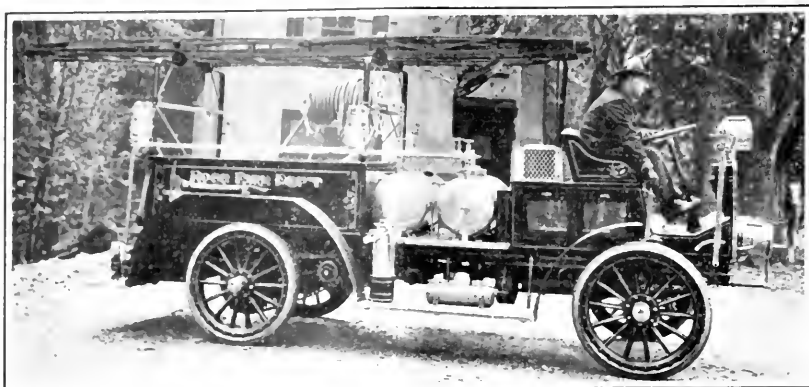
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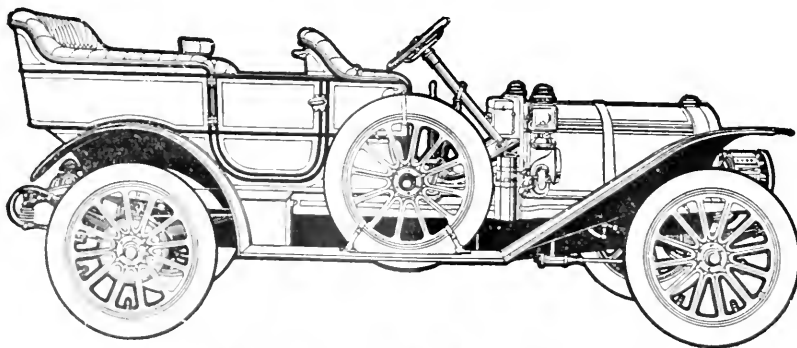
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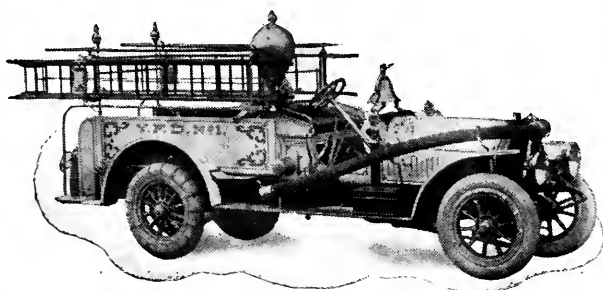


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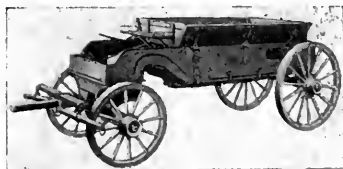
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THIRTEENTH YEAR

No. 3

EDITORS	-	-	-	H. A. MASON AND WM. J. LOCKE
EDITORIAL OFFICE	-			NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO
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PACIFIC MUNICIPALITIES

▲ Journal for Progressive Cities

VOL. XXV

OCTOBER 31, 1911

No. 3

THE LOS ANGELES RATE-MAKING EPISODE

BY C. D. WILLARD IN THE CALIFORNIA OUTLOOK

The people of Los Angeles are passing through some experiences in the matter of the control of public utilities by city authority that are of more than local interest, for they touch some of the fundamental principles of democratic rule. These experiences were not agreeable; they were provocative of not a little strife and ill feeling; they brought the credit of the administration into doubt and question; and on a superficial view they seem to show a serious lack in democratic, home-rule city government on the side of efficiency and fairness.

Of course, those of us whose belief in the people is well grounded in reason and experience, those who feel that democracy is the last word in both the science and the sentiment of human order, are not going to be much disturbed over occasional errors and exceptions. We do not expect any form of government to be perfect. Just the same it is poor business to be supplying ammunition to the enemies of popular rule by putting the people into false positions of childishness and injustice. In the Los Angeles case there was no appeal to the voters, so we cannot say what the people really thought; but to the outside world the city is committed by the

action of its representatives in office.

FIRST CITY UTILITIES COMMISSION

In December, 1909, twenty months ago, Los Angeles established by initiative petition a city utilities commission for the control and regulation of public utilities as a municipal function. In New York, Wisconsin, New Jersey and Massachusetts such commissions exist under the authority of the State and there are six or eight other states where the railway commissions are clothed with some measure of control over the utility companies. At the time Los Angeles adopted its Utility Commission law, it was the only city in the nation with an institution of that character. In most cities this work, if done at all, is done by a committee of the city council. Since then half a dozen cities have established regular commissions either by charter or by ordinance. That utility corporations should be controlled and regulated in the public interest seems now to receive almost universal recognition, and that some specific agency is needed to do the work is generally admitted.

The powers of the Los Angeles Commission covered not only the ordinary

matters of regulation but also the making of rates for gas, electric lighting power, telephones and water service. Under the original ordinance the commission's powers were only advisory, but under a charter amendment, adopted last March, it could actually make rates subject to an appeal to the city council.

The personnel of the Commission has from the first been of the very highest order. During the eighteen months period of which we have spoken five different men served, one of them, the chairman, Meyer Lissner, continuously. They were all men of large experience in business affairs, independent, forceful and devoted to the public interest. No one, not even the noisiest and most impudent of the various groups that attacked these individuals and sought to pull them down, ever ventured to question their sincerity and uprightness. They received no compensation whatsoever, and the position carried no perquisites or privileges—only a great deal of very hard time-consuming work.

While the series of disturbances that finally drove the commission into resignation related entirely to rate-making, we must note that in passing that this is only one part of its function, and that during these eighteen months' of service these men accomplished a great deal of work that was of direct value to the people. For example, no compilation and indexing had ever been made of the franchises granted by the city to utility concerns that were still in force. The commission undertook that work and carried it through. Hereafter changes and additions can be made on an intelligent basis. Data and statistics have been gathered and put in order for ready use. System and forms for the annual reports of corporations to the city were adopted, and in many cases this involved changes in their methods of book-

keeping. Then there were a number of matters in the relation of the people and the companies that were readjusted to the advantages of the utility user. The five-cent carfare was extended to cover several city annexations where it had not prevailed before. The time for the use of school tickets was lengthened. The transfer system was enlarged, and the loop method was proposed and adopted by the companies for clearing congestion at various points. Dummy applications for franchises were done away with and a cross-town system was devised and is now before the council for its acceptance.

The policy pursued by the commission in seeking a readjustment of such matters with the utility corporations was not one of insolence and domineering but of conciliation and fair dealing. It was all pioneer work in a field where the rights and the powers of the people have been as yet but vaguely defined. Even in states like New York and Massachusetts, where the system of regulation has been worked out in detail in legislation and through decisions of court, utility commissions are loath to bring matters to an open-and-shut issue. The Wisconsin commission, which has achieved very remarkable results, has from the beginning followed a moderate and conciliatory course. This policy did not at all please some of the local improvement associations, however, which demanded impossibilities, and when these were not forthcoming allowed their officers to use the most intemperate language about the Commission. The Examiner and Times in their anxiety to discredit the good government cause, were ready to publish anything that would reflect on the administration or on Mr. Lissner, the head of the Commission. Thus any unknown and unimportant person who was willing to fling a rock at the Utility

Commission was given immediate publicity and prominence. This bid naturally found many takers.

ELECTRIC LIGHT RATE LOWERED

In its first year of rate-making the Commission cut the electric lighting rate from 9 to 7 cents, thus saving the people of the city about \$250,000 per annum. The companies contested the cut in a tricky fashion by a referendum that should postpone the ordinance until a regular election eighteen months later. The Municipal League then secured signatures enough to force the question to an issue at a special election for council, which was held at that time and the reduction carried by a large popular vote. This performance on the part of the companies did a good deal of harm in establishing a sentiment of angry hostility among the people against the lighting companies, and sympathetically against all utility companies. This made the position of the utility Board all the more difficult when later they sought to make readjustments in rates between different classes of consumers, lowering some and slightly raising others.

After a thorough investigation made for the city by a Wisconsin telephone expert, the Commission was convinced that the rate charged by the Home Telephone Company for one-line house service was too low to pay interest on the bona fide investment, and they recommended an advance of twenty-five cents a month. There was the more reason for this as the existing schedule gave the Sunset the privilege of charging a higher rate than the Home. The Council, however, refused to accept the Board's recommendation, alleging that the expert must be in error, and it took the other alternative—that of reducing the Sunset rate to put the two companies on

a level. The Sunset went into court to contest the new rate on the ground that it was confiscatory. The city attorney asked that a second expert review the work of the first, and one of the best known telephone engineers of the country was employed. His verdict was that the first report was correct, which left the city with no case, as its own witness must declare the rate unjust.

By this time the rate-making of 1911 was at hand, and a board of experts, appointed to pass on the schedule of electric light and power charges more in detail than was attempted on the short notice of the preceding year, proposed a plan which was adopted by the Utilities Commission and given to the public. Under the charter protestants were allowed to appeal to the city council, which body should then fix the rates. Protests were immediate and vehement. Some of these were bona fide, and were due to the fact that the experts in their effort to develop a system that should be mathematically accurate and just to all classes of consumers were compelled to make some increases. But the actual uproar was created by a few men most of them unknown and new-comers to the city, who were anxious to exploit themselves in the newspaper columns held open for any form of injury to the good government cause. A number of councilmen were stampeded by this noisy attack, and they were represented in interviews—largely spurious, let us hope—as entertaining a great contempt for experts and demanding that the people be given low utility rates anyhow without regard to the rights of the companies.

And right here it is necessary to speak of a curious persistent misunderstanding that cropped out through these proceedings with regard to the nature and purpose of the work of the Utility

Commission. When the president of the board made a public statement in which he said that they had tried to be fair to the people and to the utility concerns, the "Record" in a series of editorial articles set forth with great earnestness the theory that the Board of Public Utilities represented the people and the people only; that it was their business to get the lowest possible rates for the people without regard to the interests or welfare of the companies. The latter could take care of themselves. This view was frequently heard expressed on the streets and in public places, and the attitude taken by some of the councilmen seemed to be based on this same theory.

RATE MAKING BASED ON JUSTICE

As a matter of fact and law and justice, the Utilities Commission is not a body for the prosecution of utility corporations. If that had been the purpose of the act then the board would not have been given power to make rates, but merely to argue for them before some other tribunal. There can be no other theory of rate-making except that it is based on justice, and that means justice to the corporations as well as to the people. This makes the Commission a judicial and not a prosecuting agency. The whole tenor of the "Record" argument was that because the people wanted lower rates the Commission should give them, regardless of whether the companies were allowed to make dividends on their investment or not. And this paper, by the way, kept talking about the Commission's "granting dividends on watered stock," in spite of the fact that its writers knew and understood that all investment figures were based on tangible assets.

The attitude of the "Times" and "Examiner" on all matters of advancing

of rates was practically the same as that of the "Record," although it was never put into frank expression, and the element of sincerity was lacking, as both of the morning papers are notorious corporation sycophants. They have been comrades for the last three years in a consistent and persistent fight against good city government, and finding in this an opportunity to stir up trouble in the administration and create what they considered good political capital against it they played the game to the limit. And they succeeded to the extent that the Mayor and Council finally got themselves into an attitude toward the Utilities Commission that amounted to a "lack of confidence" vote as the English parliamentary system has it—whereupon the Commissioners did the natural and dignified thing to do—they resigned in a body.

Council then took upon itself the work of rate-making, and in the finish put through an electric light schedule that differed from the one proposed by the Commission only in a few unimportant particulars. That the supposed protestants accepted it without further kick shows that the uproar that had been splitting the public ear for some time was 99 per cent politics and vicious newspapering.

With respect to telephone rates Council repeated and accentuated its error of the year before. It had at that time the defense, which the present writer and many others accepted as adequate: That figures so surprising should be checked over by additional expert investigation and not depend on one man alone. That had now been done, and the line of right and justice made perfectly clear. The only answer councilmen have made to the facts is to declaim in an irrational and childish fashion against experts. One or two of them

have announced—or have been made to announce by admiring newspapers—that they are through with the employment of experts in city affairs. This is, of course the cheapest of buncombe. In this day and generation the man who starts out to fight against using expert help is tackling a pretty large order. When he has done with that he might proceed against the multiplication table and the English language. Do these gentlemen propose to drive out the experts we already have? If so, we would suggest that they try their new idea on with respect to Mr. Mulholland as a starter. The whole gravamen of the offense of the former Utilities Board seems to be that they employed experts and accepted their conclusions. The issue raised was not a new one. It is old in the life of the individual, and if it seems new in the career of a city, it is only that the form is changed. It is whether we are to accept an unpalatable truth or pursue a more pleasing falsehood. In the long run the people are sure to find out that the truth not only pays best but is inevitable, and those who seek to coddle them or lead them into practicing injustice, may enjoy temporary favor

but in the end will be repudiated.

ISSUE NOT SETTLED

No administration can hope to be perfect and entirely free from error, and the good government sentiment has taken too deep a root into the Los Angeles community and the present administration has too many achievements and too many points of excellence to its credit to suffer defeat through this one mistake, unfortunate and regrettable as it may be. Sooner or later, however the error must be corrected either by the courts or better yet by the people themselves. The episode is not closed, and the issue is not settled, so long as the injustice and wrong stands upon the city's utility rate book. Who are to serve upon the Utilities Board is a matter of small importance; and those who got satisfaction out of harrying the last Board to a resignation may flatter themselves into thinking it a triumph, but it is a matter of very serious importance when the people of a progressive and intelligent city are put into a position that makes them seem to have repudiated the principle of the square deal.



RATES FOR GAS SERVICE

BY C. L. CORY

(*Concluded from September number*)

Services

In obtaining the inventory of services, it is most satisfactory to list all services, obtaining thereby the size, length and character of each service as shown by the records of this department. Only that portion of the service belonging to the company should be included and if consumers have paid for any portion of the service that portion should be con-

sidered as belonging to the company. The total value of the services should represent only those actually owned by the company and in general should not include any services or reproduction of any services within customers' premises unless the cost of the same has actually been met by the company.

In order to arrive at a unit cost of services, it is best to obtain the actual

labor and material charge for a number of services installed in various parts of the district served and at different seasons of the year, to get a reliable average cost per unit length of service.

Meters, Regulators, Etc.

The inventory of meters in service is usually readily obtained from the company's records. The inventory cost of the meters should include the necessary testing, painting and all storeroom expense. The cost of installing the meters should include all costs from the time the order leaves the general office until the order and record of installation are returned to the general office. The time cards of meter installers covering a considerable period can with great advantage be used to determine the cost of installing meters of different sizes.

Furniture and Fixtures, Automobiles and Motorcycles, Stable Equipment, Tools and Supplies

Complete inventories should be made of the property owned and in actual use by the company for the carrying on of the business covering all subsidiary items such as furniture and fixtures, automobiles and motorcycles, stable equipment, tools and supplies. Only those supplies should be included which are active and of the normal quantity carried in stock and necessary for the operation of the company's business.

Working Capital

A gas plant and system in operation must have working capital as well as fixed capital. Stores and supplies which are included in the fixed capital do not represent all of the working capital such plants require. There must be available a reasonable cash balance and other current allowances in order to operate economically and effectively. Just what sum represents a fair amount

for working capital is nearly always a matter of judgment. From the amount of working capital usually carried by such companies and from the amount that is required by other similar public utility corporations, it appears that as an average for the year a sum equalling the accounts receivable and cash on hand less the accounts payable and consumers advance payments is a reasonable allowance.

The cash on hand, however, should be considered as that which is ordinarily required for the operation of the plant and the conduct of the business, including contingencies and emergencies, and should not include the capital or ready cash necessary for the construction of extensions or enlargement of the plant, or balances resulting from the sale of bonds or stock or in any case exceed the amount normally needed and used by the company as an operating property.

Such an inventory coupled with what might be called the inventory costs serves to obtain the detailed and segregated costs of the various elements going to make up the physical property of the plant. In addition in order to estimate the total valuation it is necessary to ascertain as nearly as may be the time required for construction in order that interest upon the investment during the construction period may be estimated. The cost of engineering, supervision, fire and casualty insurance, administration, legal expenses and other factors must also be obtained, preferably from the actual working conditions during which recent construction work was carried out.

Taken together the cost of reproduction new of the physical plant is usually considered to be the sum of the elements above enumerated. The cost of reproduction new has been variously interpreted, sometimes erroneously, especially

when it has been held to mean a system identical with the one the valuation of which is under consideration. Properly, it should be understood as a plant of similar character and equal efficiency. The age of the system will have much to do in indicating the fairness with which the cost of reproduction new is considered.

It will depend upon conditions as to whether the cost of production new and the original cost vary materially. One of the principal differences which will be found will be in the size and capacity and number of units in the two cases. Gas plants are probably never built in a single year, nor used exactly as they were originally constructed for a number of years. The original cost will probably properly cover the plants as installed with small units, while the cost of reproduction new may be considered to cover only the cost of a smaller number of much larger units having the same aggregate capacity. Especially would this difference arise in connection with the distribution system, both mains and services. Originally one single main on one side of the street of comparatively small size may have been adequate to provide gas service in that particular vicinity. Later on it became necessary to lay an additional gas main many times larger than the original and as is often the case this later main is laid upon the opposite side of the street, resulting in the cutting of all services leading to property on the side of the street where the new main is laid and the connection of those services into the new main, instead of the old. As viewed from present requirements, one gas main alone might be considered in obtaining the cost of reproduction new, while the actual cost would necessarily be greater.

Depreciation in Its Relation to Valuation

While the original cost as well as the cost of reproduction new are ordinarily of the greatest importance in determining the proper valuation upon which earnings should be based, there is what is often called the present or existing value, or cost of reproduction new less depreciation, which must be given consideration in determining the valuation in question. Especially is this the case in plants the rates for gas service from which have been ample to cover operating expenses, including depreciation, and a fair amount for interest and profits, but the amount collected for depreciation has not been used as it should be and set aside for replacing portions of the plant discarded because of their becoming obsolete, inadequate or worn out, but on the contrary has been distributed to the stockholders in the shape of dividends.

Depreciation should be considered as the amount that must be regularly set aside to cover all portions of the plant that are discarded because of wear and tear, inadequacy, obsolescence and general unavoidable decay. It is an operating expense and should be borne by the customers through the rate paid by them for the service rendered by the utility. But as it is paid by the customers, it must be set aside by the company and used when needed for the renewal of worn out and useless portions of the entire system, and under no circumstances should the cost of such renewals be made an additional charge to the capital or construction account except when the replaced equipment is of greater capacity than that which is taken out. Care must also be taken that the operating charge properly known as depreciation shall not be used for ordinary

maintenance and repair. Actual additions and extensions to plant which should be charged to the construction or capital account, replacement of equipment set aside as a result of depreciation, and ordinary repair and maintenance costs, must all three be most carefully separated and completely segregated in the engineering records as well as the financial accounts.

If construction, depreciation, repair and maintenance accounts are not so considered and depreciation is borne by the customers as a result of being included in the operating expense, and such depreciation fund is not used to keep the plant in its proper condition, but is paid in dividends to the stockholders, it is practically equivalent to the payment of dividends out of capital. Rates of service should be such as to include a reasonable charge for depreciation, and if the rates are such as to do this and the amount necessary to cover depreciation is not used as it should be, it cannot mean anything but that the money, either in surplus or dividends is going to the stockholders instead of being used for the purpose intended.

An allowance for depreciation obligates the company to use of this money in keeping the plant in thorough operating condition, and if it is not so used but is turned over to the stockholders, it simply means that a part of their capital is being returned to them, thereby reducing the investment in the plant. If this is the case, as a matter of fact the investment is so reduced and there should be corresponding reduction made in the actual investment presumably represented by the original or cost of reproduction new. In such instances, if the owners of the property, instead of keeping up the plant as they should by the proper use of the annual depreciation charge, have appropriated for their

own use the money contributed by their customers, the annual depreciation should each year be deducted from the valuation of the plant which might otherwise be obtained.

Depreciation, like interest, continues constantly and is always present. Every part of the physical property of any system exclusive of the land begins to depreciate when the plant is completed and ready for operation; therefore, the depreciation charge should be constant. It of course may be that such depreciation covering a number of years may be arrived at as an average for a long period, and it will not be necessary to expend the average each year. This is of minor importance, however, providing the methods by which the depreciation charges are obtained are sound and reasonable.

Two methods are in common use for determining depreciation. The first is known as the straight line method, which involves determining the probable ultimate life of each element of the system, consideration also being given to the value of the discarded element as junk at the end of the period. In the straight line method it is assumed that during the entire life of each element of the plant the depreciation is uniform, which of course is not ordinarily the case as the rate of depreciation of a plant as a whole is much more rapid during the latter part of its life than during the first years of its use. Fairness to customers, however, in the different years, as well as safety to investors, indicates clearly the wisdom and correctness in considering the depreciation uniform throughout the entire life of each portion of the plant.

The second method of determining depreciation is upon the assumption that each year an amount is to be set aside and invested at compound interest so

that this amount plus interest will be available to cover the cost of the replacement needed at the end of the period when the device or element is discarded and replacement necessary. The so-called rates of depreciation will naturally be less in the latter method than in the former, since it is assumed that the depreciation fund will earn interest from the end of the first year or even shorter period. If we consider the life of some portions of a plant to be between twenty and thirty years, with the latter method it is necessary for us to in advance assume an interest rate which will continue during this entire period and this is an assumption which, judged by the last twenty-five year period, is hardly justifiable.

It may very properly be said that neither method exactly corresponds to actual experience. At the same time the rate of depreciation is something that must be carefully estimated for each individual plant and the data required compiled from the best information obtainable from those who have been in charge of construction and operation preferably, for a number of years. If new devices are constantly being perfected and introduced rates of depreciation will be high due to the fact that older apparatus will become obsolete and inadequate at an early date. On the other hand, if the different portions of the plant are not subject to a change as a result of improved or modified methods or distribution, rates of depreciation will be low, providing, of course, that wear and tear and ordinary deterioration are not severe with a reasonable expenditure for ordinary replacement and maintenance.

Intangible Elements of Value

In determining the proper valuation, therefore, the original cost, cost of re-

production new, present value as affected by depreciation should all be taken into consideration. They are not the only elements, however, although they are usually the most readily determined. One element of value often suggested is that of "good will". The good will of a business is an asset that cannot be ignored in determining the valuation of a property, provided the element of good will is inherent in the business of a public service corporation which may have a practical monopoly. One of the most comprehensive and generally accepted definitions of good will is by Judge Story.

"Good will may properly enough be described to be the advantage or benefit which is acquired by an establishment, beyond the mere value of the capital stock, funds or property employed therein in consequence of the general public patronage and encouragement which it receives from constant or habitual customers on account of its local position or common celebrity or reputation for skill, affluence, punctuality, or from other accidental circumstances or necessities, or even from ancient partialities or prejudices."

Judge Hough must have had this definition of good will in mind in the case of Consolidated Gas Company vs. The City of New York, in which he says:

"There is nothing in the nature of the business enabling it to acquire good will in the property sense or indeed in any other. It is required by law to furnish gas to all demanding it within a certain distance of the mains, and it owns the mains, service pipes and meters. What induces a customer to remain with this company, its successor or vendee? Nothing that I can imagine, except a desire to avoid the nuisance of street digging in front of his house; a digging, however, entailing no expense upon him. Yet even this nuisance is in all human probability impossible of occurrence because of the beneficially monopolistic character of defendant's present occupancy of the streets of this city * * *. Finally, this claim of good will seems to forget that for many years the price of distribution of complainant's gas has been regulated by law. A citizen is entitled to have a clean street before

his house because he pays taxes, *inter alia*, for that purpose. He is much more entitled to have complainant's gas in his house because the company must give it to him if he pays for it. I think it apparent that the conceivable good will of a gas company in this city is about equal to that of the street cleaning department of the municipal government."

The public service corporation operating where competition exists may have an element of good will in its valuation, but it is certainly of little if any, consequence where the public under any circumstances must obtain its service, if at all, from a single corporation.

In a somewhat similar manner may the assumed value of franchises be considered in determining the valuation of the property of a public service corporation. Based upon court decisions, the principal element in the value of a franchise is the earning capacity of a property of the corporation in connection with which a franchise is necessary. Viewed from this standpoint, since the earnings must be directly dependent upon the rates charged for service, it is evident that to include the value of a franchise as an element in determining rates develops an almost impossible situation. A franchise which is not exclusive can have no real value from any standpoint and is in reality little more than a permit to carry on the business and to do necessary work upon public property. As an element of value, even in the sale or transfer of the property, it is questionable whether such a franchise would be given serious consideration. If, however, a franchise is exclusive and is owned by a company, it may be considered of value and would be rightfully considered a part of the entire system if the business were sold. On this assumption it is proper to consider a franchise as a part of the taxable property of the company. On the other hand while there may be some cases

where the valuation of a property may rightfully include a certain sum as the value of the franchise, yet when this value must depend upon the rates for which service is rendered, it is difficult to see how it should be considered as a part of such valuation.

There is an element of value that must be taken into consideration in determining the valuation of a property and which is sometimes referred to as "Going Value." This is sometimes covered by an allowance usually in percentage to cover the difference between the cost of the physical property and the value of the completed system in operation providing service to its customers and possessing numerous valuable contracts for giving service in the future. Going value is of an intangible character and may be estimated in some instances by estimating the cost of developing the business which the company enjoys at any particular time. The data naturally is rarely obtainable to indicate the money actually spent by the company to obtain its business, since in recent years the period of time during which public service corporations have been ready for operation and yet not actually engaged in providing service, approximately at least up to their normal capacity, has usually not exceeded one or two years. When the earnings of a public service corporation have not been sufficient to meet reasonable expenditures for the development of its business and to cover operating expenses, depreciation and a reasonable return on the investment, the losses incurred in building up the business must be considered as one of the elements to be included in appraising a plant for the purpose of determining the proper rates for service.

Probably the most concise statement in this connection is from the decision of Justice Brewer in a most noteworthy

decision in the case of the National Water Works Company vs. Kansas City in connection with the valuation of a water works which had been taken by the municipality:

"The original cost of the construction cannot control, for 'original cost' and 'present value' are not equivalent terms. Nor would the mere cost of reproducing the waterworks plant be a fair cost, because that does not take into account the value which flows from the established connections between the pipes and the buildings of the city. It is obvious that the mere cost of purchasing the land, constructing the buildings, putting in the machinery, and laying the pipes in the streets—in other words, the cost of reproduction—does not give the value of the property as it is to-day. A completed system of waterworks such as the company has, without a single connection between the pipes in the streets and the buildings of the city would be a property of much less value than that system connected, as it is, with so many buildings, and earning, in consequence thereof, the money which it does earn. The fact that it is a system, in operation, not only with a capacity to supply the city, but actually supplying many buildings in the city—not only with a capacity to earn, but actually earning—makes it true that the fair and 'equitable value' is something in excess of the cost of reproduction."

In general it may be said that the courts have with few exceptions held that going value is an important and valuable consideration in determining a fair valuation for the property of a public service corporation devoted to public service. The difficulty, however, is in obtaining a fair and proper figure in any given case. Competition may at any time seriously affect any estimate which may be made of the probable value of a going concern as contrasted with the physical plant without customers or contracts. It is probably most satisfactory to treat this matter primarily from the standpoint of the excess value of the completed system in operation over and above the original cost, cost of reproduction new, or cost of re-

production less depreciation of the physical plant.

If this is done, however, such excess value of the completed operating system must be considered entirely separate from a percentage which may properly be considered as approximately the contractor's profit who undertakes to design, build and supervise the complete construction of an entire system, turning it over ready for operation to its owners.

The true value of a thing has been defined as the price upon which a purchaser and a seller mutually agree and at which figure an actual transaction takes place. If an existing plant and system were to be purchased and the owners were willing to sell it all, they would surely take into consideration what it would cost the purchaser to duplicate not only the physical plant but obtain all of the business enjoyed by them, and the prospective purchasers would surely consider what it would cost them independently to install a plant of equal general efficiency and usefulness, including the business developed and under control of the prospective sellers. In the long run, the true value must be the capitalization of an assured income. A certain portion of this value is represented by tangible property and the remainder, if there be any, must be regarded as primarily traceable to the earning power of the business.

Gross Revenue, Cost of Operation and Quantity of Gas Manufactured and Sold

Gas being a commodity, it is manufactured, distributed and sold to those who use it. As manufactured and sold it is divided into units which are usually 1000 cubic feet. The operating expenses may be properly divided into manufac-

turing, including fuel, distribution, general expenses, taxes and licenses and depreciation. For any period the unit cost may in a general way be obtained by dividing the total expense by the total quantity sold and the average cost per 1000 cubic feet is thereby obtained. Similarly the unit cost for fuel and other station costs, for distribution, taxes and licenses, depreciation and general expenses, may also be determined. It is of importance also to know the relation between the total gas made and delivered to the holders and the quantity actually sold as per customers' meters. In this manner definite data is obtained for the leakage and the reduction in volume of the gas as measured by the station meters and by customers' meters.

The operating expenses can be definitely divided under two heads, fixed and variable. The fixed costs should include all expenses that are independent of the quantity of gas made but which remain practically constant whether the plant is operated at or near its full output, or at a fraction of this. Variable expenses include those costs that vary with the output and may be considered as of little consequence if gas is not made. Naturally, those two classes of costs are dependent and may vary widely.

It is not always possible to make a definite segregation of these fixed and variable expenses, but when necessary, approximate subdivisions may be made of expenditures involving both. The cost of manufacture per 1000 cubic feet depends largely upon the total amount of gas made, decreasing as the volume of production increases and increasing as the quantity made decreases, and a slight reduction in the sales will materially increase the cost of manufacture per 1000 cubic feet. The greater the sales the smaller is the cost of manufacture,

but not in the same proportion for the total cost of service, when we include the distribution to customers' meters, and it is therefore of the greatest importance in discussing the rates for which gas may be sold to clearly distinguish between the cost of gas in the holder and when delivered to the customer's premises.

In general, it may be said that very large consumers involve a smaller cost per 1000 cubic feet than small consumers. The question naturally arises, should this difference in the cost of service to various classes of consumers be taken into consideration in determining the proper rates for service? The same rate for all is a term that is often much more beautiful in the abstract than when absolutely applied. Sometimes such a policy, when it means the same rate for all regardless of both cost and the effect upon the growth of the business, is a violation of sound business principles and decidedly against public policy. Often, uniform rates for a very large territory with the same class of customers may fulfill all requirements, but it does not follow that the best interests of all concerned are conserved where, in deciding upon a rate, it is made uniform for every customer. Very closely related to the fixed and variable expenses are capacity and output expenses, and in some respects they more clearly define the costs involved in the two classes of expenditures. There is a term known as "Consumer's charge" which may ordinarily be included as a part of the fixed costs of operation, and such expenses are directly proportional to the number of consumers taking service.

These considerations usually lead to the establishment of what is known as minimum rates or a minimum bill, which should be high enough to cover the cost to the company of the consum-

er independent of the quantity of gas which may be delivered to and used by him. Many times the actual consumption of gas for small customers is not a greater factor in the cost of rendering service and from this standpoint the establishment of minimum rates would seem to be sound and thoroughly justifiable.

While no rates should be greater than the value of the service rendered, it is not necessarily equitable to charge the same rates to all regardless of the actual cost, and, as the cost of manufacture per 1000 cubic feet depends very largely upon the magnitude of the output, such a policy might not only tend to discourage large consumption but to actually increase the cost to small consumers. It may even happen that large quantities of gas should be sold at even less than enough to yield the regular rate of return rather than these quantities should not be sold at all.

This phase of the situation is often entirely neglected, not only by gas companies, but by those responsible for the adjustment of rates on an equitable basis. Failure to consider such opportunities often results in losses of great magnitude and thereby results in increased cost to all consumers. A wise and far-seeing management having all the information available can usually treat such matters most effectively by taking into consideration the location of such large customers and the character and magnitude of service required.

In this connection it is of interest to discuss the advisability of charging a higher rate for gas when used for lighting purposes than when used for heating and cooking. As a matter of fact by far the largest part of the consumption of gas is for purposes other than lighting, and this probably accounts for the fact that the rates for the two

classes of service differ. In addition there is of course the fact that the use of gas for lighting concentrates the maximum demand somewhat similar to, although of less magnitude than, the use of electricity for lighting. Gas is stored in the holder with little additional cost as compared with the storage of electricity, so that the peak load character of the demand is decidedly of smaller consequence, as regards the maximum capacity of the plant, than in the generation and consumption of electrical energy. Whether use for lighting or fuel on the customers' premises the gas is used in the same way and from the same service pipe, and unless there is a very great difference in the magnitude of consumption in the two cases it is difficult to see where lies the difference in the cost of service in the two instances.

Rate of Return on Investment

What is an adequate return on the investment for a public utility corporation is a question that has been given the greatest consideration not only by the courts of the country, but by Federal, State, Municipal and other commissions. In the U. S. Supreme Court decision in the Consolidated Gas Case of New York, it is stated that:

"There is no particular rate of compensation which must be in all cases and in all parts of the country be regarded as sufficient for capital invested in business enterprises. Such compensation must depend greatly upon circumstances and locality; among other things the amount of the risk in the business is a most important factor as well as the locality where the business is conducted and the rate expected, and usually realized there upon investments of a somewhat similar nature with regard to the risk attending them.

In considering such a matter it is evident that under present industrial conditions the best interests of society as a whole are subserved when the share

of each factor of production is high enough to cause a free and natural distribution of capital and business ability as well as labor into all utilities. When wages and the returns on investment are not high enough to be attractive then in such a utility there must be a decline. No utility will be furnished unless the factors making such a utility attractive are present. Wages must be high enough to attract competent workmen, salaries sufficient to engage successful superintendents and managers, interest on the capital legitimately invested must be earned, and, in general, the return must be high enough to induce investors to assume all risks and responsibilities that are involved in their operation. From this it naturally follows that the rate fixed for service rendered by public utility corporations must in the long run be high enough to attract all of the elements necessary for the production of that service, taking into consideration the wages to be paid, the cost of superintendence and management, the interest on the investment and a reward for the risk and responsibility entailed.

Unfortunately, however, many who have been most active in the development of public utility corporations in recent years have been interested therein primarily from the speculative standpoint rather than as legitimate investors. Speculation necessarily involves risk. An investment is generally considered reasonably safe. A high rate of return rarely compensates when there is a danger of losing a part or all of the principal. Customers of a public service corporation have a right to demand that the rates they pay for service shall be only adequate to give a proper return upon the necessary investment required, and not so high as to make the return, upon a reasonably safe in-

vestment, of the magnitude usually demanded in a pure and unadultered speculative venture.

The tendency toward legislation affecting public utilities, the creation of wise and powerful commissions and the enactment of numerous laws not only regulating but actually protecting public service corporations constitute a definite reduction in the risks and hazards formerly existing in many instances.

In public utilities capital cannot be turned over as frequently as in commercial enterprises, due to the relatively large proportion of the fixed investment. Legislative regulation of public utilities through commissions may in some respects be detrimental to financial operators who endeavor to evade their obligations under the common law and who try to profit by the manipulation of capital rather than through legitimate, effective and economical operation of their plants. Such regulation, however, cannot possibly result in permanent injury to the great majority of investors and to the utilities themselves if honestly applied and administered with ordinary care. An investment along the lines of and in the spirit of such laws as those which have been upheld by the courts assures, in every case, a reasonable return on a fair valuation of the plant.

While public utilities are subject to many conditions that tend to increase the risks under which their business is carried on, they are also afforded a great deal of protection that is of the greatest value to the investors. Many are natural monopolies engaged in furnishing service that has practically become a necessity and for which, at least at the present time, there are no effective substitutes. An investment in a public utility corporation wisely directed, while involving a greater risk than if the same money was placed in

good mortgages, should not involve hazards equal to investments in ordinary competitive enterprises.

The profits of a business consists of the balance between the sum of expenses and the total income of the business. It is the difference between the sum representing the operating expenses, which includes rent, salaries and wages, fuel, taxes, interest, depreciation, and the total gross revenue. This difference is the last share of the total income and unlike all the other shares is not fixed. It simply consists of what is left after all other claims have been completely satisfied. Salaries, wages, rents and interest are usually fixed at a certain amount per annum in advance and are paid out of the gross receipts. The amount left after these shares have been satisfied belongs to the owner and represents his share of the profits of the business. Interests and profits, notwithstanding the indeterminate quality of the latter, are usually measured upon the same basis and are included in what is generally known as the adequate return on the investment.

The difference between the gross revenue and the aggregate of the legitimate operating expenses for a single year is the sum usually considered as the net revenue or return upon the investment. As the gross revenue and the operating expenses are for many reasons subject to wide variations, it is manifestly unsafe to determine rates upon a single year's business. A most valuable method is to consider the gross and net returns per dollar invested for a number of years of operation. By doing this the additional investment in the plant from year to year as well as the growth of the business, both from the standpoint of gross revenue and operating expenses, is obtained. In fact, many important conditions affecting the

company are brought to light in such an analysis.

The value of ascertaining how much a dollar earns, both gross and net is due to the important differences between public service corporation and ordinary commercial enterprises. In most private undertakings the operating expenses can usually be greatly reduced or even practically eliminated if for any reason the gross receipts are reduced so as to make the business unprofitable. But this cannot be done in the case of public service corporations, who must under the law provide service to all within the territory covered by the distribution system provided who request it. While the investment in the private enterprise may be greatly restricted or even withdrawn, such is not the case with a public service corporation. The relatively large investment in plant, equipment and other property of the public service corporation means that the interest and other fixed charges go on at about the same rate whether the plant is operated and its output sold or not. As a result, the public service corporation is compelled under certain adverse conditions to keep its plant in operation even if the actual operating expenses are greater than the gross receipts.

A complete investigation of all conditions existing for a number of years is therefore of much greater value than confining the data upon which rates are fixed to a single year's business. The public service corporation should not be a free agent to do absolutely as it pleases, and on account of this restriction certain reasonable protection is desirable for all concerned. Free and unrestricted competition between private enterprises may be of the greatest benefit to the public. Experience shows, however, that this is not the case with public service corporations where the

commodity furnished by them is a necessity and the character of the business such as to be a natural monopoly. Competition in such cases inevitably results in a bitter struggle for supremacy and rates so low as to be inadequate to maintain the proper quality of service and yield a return sufficient to make extensions commensurate with the growth of the community. Two or more distinct and separate corporations providing the same public commodity are not likely to remain separate very long. Sooner or later it will be self-evident that the service rendered by them independently can be more cheaply, effectively and in a better manner provided by a single operating system under one management. As a result it is an invariable rule that competition which is often thought to be preventive of excessive rates becomes ultimately the direct cause of what is relatively extortionate rates of service, when compared with what the rates should be if destructive and temporary competition is prevented and the rates equitably fixed under proper control by a wise commission.

Again, a modification of rates at frequent intervals is undesirable, as it renders unstable and therefore the more hazardous the entire business of rendering service. Everything of every character tending to eliminate uncertainties and general risks on the one hand and which provides protection and

wise regulation on the other, definitely increases the security of the investment, the required return upon which is thereby reduced, the general stability of the enterprise is materially improved, resulting not only in reduced rates but improved quality of service.

Conversely, the rate of return on the investment and consequently the rates of service must be correspondingly high as long as unrestricted competition threatens, and extraordinary risks involving a possible loss of a large fraction of the investment confronts, those interested in the progress and development of public service corporations in general.

In the end, all costs of every character, such as litigation and other expenses, incident to the establishing of rates, whether paid out of public funds or by the public service corporations, come out of the customers' pockets, as taxpayers in one instance and as consumers forced to pay the company for service in the other. The constant danger to the company of having its investment as well as its gross revenue seriously impaired due to the fixing of rates upon other than a sound and equitable basis involves that much extra hazard, in conducting its business, necessarily requires an increased return upon the investment on account of such menace, and in turn will ultimately result in rates higher than they should be.



ROAD CONSTRUCTION

FROM THE BULLETIN OF THE LEAGUE OF AMERICAN MUNICIPALITIES

Digest of remarks of Frank J. Eppels, engineer of Mercer county, N. J., and president of the New Jersey state association of county engineers at opening of convention in Trenton, N. J., Tuesday, January 24, 1911.

Questions relating to various methods

of road construction have been assigned to different members of our association, who will, without doubt, present their respective subjects in detail as regards construction and make comparisons that

will establish their relative merits. For this reason I will refrain from entering into a discussion in relation to either method or merits of construction and will therefore only take advantage of this opportunity to express my personal views as to the best method for future use.

After due consideration I am prepared to place myself unqualifiedly upon record in stating that a form of construction calling for the use of a mineral aggregate, so porportioned as to size to give the lowest possible degree of density and which provides for the mechanical coating, while hot, of said aggregate with the required amount of a first-class bitumen, of the proper consistency, will produce, when laid upon a good base, an ideal wearing surface for either new or renewal construction work. I will not even qualify this statement by referring to the question of initial cost. In my judgment, any reasonable difference in first cost will be more than balanced in a very few years by its superior conditions during all seasons of the year and the undisputed increased length of service it will give, and these advantages, in the end, will without doubt result in an actual saving in total cost when compared with other form of construction.

In an opinion recently filed the United States Circuit Court, Southern District of New York, in the case of Warren Brothers Company versus City of New York and Uvalde Asphalt Paving Company, the Court held "The claims in issue are for a product, not a process. The claims must be read in the light of the description, but it cannot be doubted that anyone using a Warren pavement will infringe, no matter how the pavement is produced."

It would seem from this broad and sweeping opinion of the court than any

form of pavement, composed of mineral aggregate, so proportioned as to size to produce a mass having 21 per cent or less of voids at the time of construction, or that will at any later date constitute a mass having this percentage of voids, even if this latter condition is due to changes of temperature and the action of forces over which the contractor or owner have no control whatever, would constitute an infringement upon the Warren patents.

As experienced engineers, we must admit that any method of construction, calling for the use of a mineral aggregate, will reach a degree of perfection proportionate to our ability in so grading or arranging the mineral constituents as to reduce to a minimum existing voids. Then, with the addition of a proper bitumen we will have a mass that will not only be dense but waterproof, and one in which the mineral structure will be called upon to sustain the wear and tear upon the road. On the other hand, the farther we recede from these principles, the more we are sure to court failure. It would seem, then, that the paramount principle is the proper grading, as to size, of the mineral constituents. Admitting this fact we are then confronted with the opinion of the court, above referred to, and are told that we cannot construct this class of pavement if, at any time, the resulting structure should constitute a mass containing voids below 21 per cent without infringement upon existing patents. Under these circumstances, what becomes of the popular cry upon the part of the public and the smaller contractors, that the engineer should prepare a specification calling for given quantities and fixed qualities of asphalt, sand and stone which, when thoroughly incorporated into a mass by a general method of manipulation, is to constitute

the desired wearing surface. If we attempt this we must first choose between two evils; namely, infringement or an inferior pavement.

This condition of things, if true, is very much to be regretted in that it will limit the general adoption of these ideal road building principles. The patentee is justly entitled to a reasonable reward for his superior skill and forethought, but until we reach the point when specifications can be prepared embodying these principles of construction, and under which we can have absolutely free and unlimited competition, the adoption of the same will not become general. In my address to you a year ago, I called attention to the possibility of this evil arising, and suggested a remedy whereby the state or the various counties should enter into a direct agreement with the owners of the patents involving the principles it is essential to adopt and then to prepare a general specification under which it will be agreed upon the part of state or county, to indemnify and save harmless the contractor from all suits or actions, due to his working under said specifications.

Next in importance to the method of construction comes the question of efficient supervision of the work during its construction period. The custom of appointing a supervisor because he is a resident along the line of the proposed work and that for this reason, it is fair to assume he will be personally interested in seeing that all the requirements of the specifications are rigidly lived up to by the contractor, should be relegated to the rear along with the old methods of construction.

Under the old system we seldom if ever had a supervisor who possessed any previous experience, and by the time he gained the necessary knowledge to enable him to give the best service to

the state and county, that particular piece of work was completed, when the supervisor would return to his original occupation, which is generally that of a farmer, leaving the engineer to face the same handicap when starting the next piece of road work.

How can we expect to secure the services of men of experience when we offer him as compensation an amount often less than is being paid by the contractor to some foreigner who is filling a position of sub-foreman?



TRADE NOTES

We take off our caps to the City Trustees for one thing, and we do it because we believe in giving merit credit. If we didn't think we were right we wouldn't say it, and so when we chide or when we distribute laurel leaves we believe we are doing right.

The new water system is a "cracker-jack", "hum-dinger" and a few more things. It is O. K. We congratulate them not so much for what they did as what they permitted one who had experience in installing water systems to do; we congratulate them because they destroyed the plans that they had drawn up and told **F. C. Roberts** to go ahead. When they do things like that it shows that they are trying, and when they try, really try, the results are worthy of commendation. The Municipal Water Works is the best boost that has been given Madera in many a day.

The Good Roads Machinery Co., of Kennett Square, Pa., have issued a handsome catalogue showing the different kind of road oiling machinery han-

dled by them. The catalogue is beautifully illustrated with half-tone pictures and contains a thoroughly comprehensive description of their machines and the methods of their use. Those who contemplate the purchase of any machinery of this character would do well to first procure one of these catalogues.

The progressive town of Willows, California, now enjoys the distinction of being the first municipality on this coast to install an automobile pumping engine for fire fighting purposes.

C. S. Richardson, manager of the **Reliance Automobile Co.**, has just returned from Willows where he delivered a ninety horse power, six cylinder Knox Fire Fighting machine and states that the Willows authorities are very much pleased with their latest acquisition for fire protection. "The Willows pumping engine," said Richardson, "is really an entire fire department in one piece, consisting of a reciprocating plunger pump with a capacity of delivering six hundred gallons of water per minute, a

forty gallon chemical tank and a hose wagon body carrying fifteen hundred feet of two and one-half inch water hose. The maximum road speed developed was thirty miles per hour."

"The engine was then driven out to the baths where a suction hose was run down to a large swimming tank and the pump started for an official test. The requirement of six hundred gallons per minute was easily accomplished, our pump delivering an average of six hundred and twenty gallons per minute for one hour's duration, readings being taken every minute, and with the throttle only half open. This same engine has delivered as high as seven hundred and fifty gallons per minute in previous tests and that by suction from a tank with a low lift, where there is no hydrant pressure to assist the pump. The smooth running of the motor, the absence of all vibration in the pump and the great height to which the two streams of water were thrown, all received most favorable comment from those witnessing the test. The opinion freely expressed was to the effect that the day of horse drawn steam pumping engines was past."

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QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry.

Q. Dear Sir:—Will you kindly send us any copies of Ordinances which you might recommend, relative to the regulation of Municipal Water Works? This City has recently acquired such a system, and desire to enact an ordinance regulating same.

Further:—Will you kindly define what is meant by a "Printer's Square," and give the measurements of a Standard Printer's Square. An immediate reply will be appreciated.

Ans.—Replying to yours of Oct. 7th we send you enclosed copies of some ordinances, which may give you some information such as you desire. Will say, however, that the particular man-

ner of regulating municipal water works in any one locality is due largely to the particular conditions prevailing at that locality; you may get some suggestions from the enclosure.

A "Printer's Square" usually is one-half inch set in twelve point type; it is sometimes construed as being ten lines in six point type, which amounts to five-sixths of an inch. There is no standard.

Q. Please refer to our ordinance book, page 23 ord. No. 8 and advise if we may arrest and

collect a fine for the Town when a man fires a gun on the public streets. Or can he be arrested only on the State law?

Ans. Your inquiry of Aug. 21st at hand. Replying thereto will say, that firing a gun on the public street of a municipality is not a misdemeanor under the State law, therefore you should prosecute under your town ordinance and collect a fine for the town.

Q. Can I deputize the city attorney to act as my deputy during my absence from town?

Ans. Yes.

Q. I have been instructed by the Trustees of the Town of Susanville to draw up an ordinance relating to the speed of automobiles within the corporate limits, also as to crossings, and to provide for the number of lights that each machine must have and the hour for lighting the same. This being no small undertaking I thought that you could furnish me with the necessary information or rather with ordinances from some of the larger cities from which I could frame a set for this city.

Ans. Enclosed you will find copies of ordinances regulating automobiles within corporate limits. From these you can probably extract the necessary information; if not let me know.

Q. Advise me by wire whether under act of Nineteen Eleven it is necessary for trustees to pass resolution adopting plans and specifications before passing resolution of intention, also if both resolutions cannot be passed at same meeting.

Ans. Not necessary, and both may be adopted at same meeting. On further reflection however, advise adoption of plans and specifications in all cases before passing resolutions of intention.

Q. We find that on account of our new asphalt pavement, we need to amend our city ordinance on care of streets.

Have you at hand copies of any ordinances covering this matter? If so, we would appreciate your mailing us something.

Ans.—Your request for copies of or-

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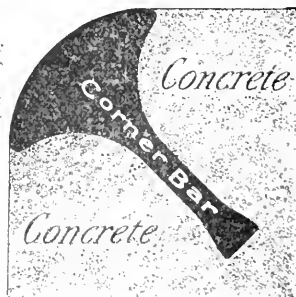
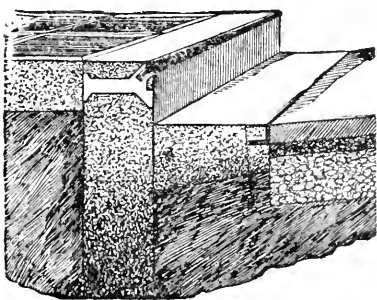
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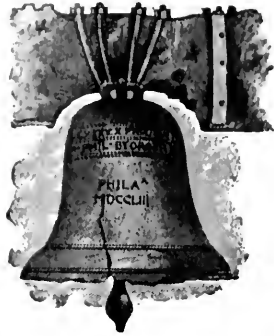
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ordinances covering the care of streets is at hand. Enclosed please find copy of ordinance of Selma covering certain points in this connection, also the traffic ordinances of San Francisco which may contain some provisions that may be of use to you. We seem to be rather deficient in this line of ordinances, and very few towns have ordinances that deal with the subject in detail. If these ordinances are not sufficient for your purpose let us know exactly what ground you wish to cover and we may be able to advise you further.

Q. Our Town has advertised for bids to furnish and lay complete 2000 feet of six inch sewer main. Bids to be opened October 9th. From indications we may not receive satisfactory bids. In case the Board does not can they legally reject any or all bids and put in the work themselves by placing material on ground and employing Town Engineer and Superintendent of Streets and Sewers to put in work? An answer by return will be appreciated as we wish to know this by the 9th.

Ans. Yours of October 2d duly received. In case you do not receive satisfactory bids on October 9th, after

rejecting them, would suggest you proceed as follows:

First, advertise for bids to supply the necessary material only.

Second, you may then go ahead and employ your town engineer, superintendent of streets, etc., to do the work, and make a practice of paying their bills in less than \$100 amounts.

This method is not a legal one, however, but if your Board thinks it to be the best and most economical method of doing the work the worst that could happen would be an injunction by some disgruntled person to restrain payment of the bills. If the Board does not care to do this they may advertise for bids to do the work on the Force Account method, whereby the bidder agrees to do the work for a certain percentage of the cost for superintending the same. Your engineer may present a bid and you may reject the others. We are inclined to favor the first plan, however, but must admit it is contrary to the general laws.

What the Cities are Doing

Venice has joined the League.

Willets is about to install a lot of corrugated iron culverts.

Bishop is about to construct a number of sewer extensions.

Stockton is putting down a lot of substantial street pavements.

Roseville is contemplating the acquisition of the present lighting plant.

Redondo Beach has advertised for a street sprinkler and a dump wagon.

Auburn is about to commence work on the extension of its sewer system.

Hayward has voted \$12500 bonds for a new fire house by a vote of 350 to 40.

Newman Bids have been invited for the construction of a new grammar school.

Chico intends to purchase a street sweeping machine for cleaning the asphalt streets.

Biggs. Bids are invited for the construction of a new pressed brick school building in this town.

Porterville contemplates considerable street work of a substantial nature, to be done under private contract.

Oakland is procuring two motor driven combination chemical and hose wagons for the fire department.

Orland is about to organize a fire department, equipped at the start with a chemical engine and fire hose.

Stockton has received the Knox Combination Chemical and Hose Wagon recently ordered by that city.

Coronado is building a new fire house. Also proceedings have been commenced for the construction of a sea wall.

Oroville has commenced proceedings to enforce a lot of sidewalk construction, including cement curbs and gutters.

Rio Vista trustees are proposing to have a bond election in the near future on the proposition to raise money for a sewer system.

St. Helena wants to purchase some additional fire apparatus, possibly a motor truck and chemical engine may be procured.

Mayfield has commenced proceedings for paving Main street with a two-inch asphalt mastic pavement on four inches of macadam.

Visalia is about to purchase a fire engine. A committee has been appointed to investigate the various kinds and make a recommendation.

Oxnard is about to put in an extension to its sewer system, and an effort will be made to have the work done before the heavy rains come on.

Sebastopol has contracted with the Gamewell Fire Alarm Telegraph Company for a seven station, two current, storage battery, electric fire alarm system at a cost of \$2000.

We will never bring disgrace to this our city by any act of dishonesty or cowardice, nor ever desert our suffering comrades in the ranks; we will fight for the ideals and sacred things of the city, both alone and with many; we will revere and obey the city's laws, and do our best to incite a like respect and reverence in those above us who are prone to annul and set them at naught; we will strive unceasingly to quicken the public's sense of civic duty; that thus, in all these ways, we will transmit this city not only not less, but greater, better, and more beautiful than it was transmitted to us.

Translation of the Citizenship Pledge spoken by the youth of Athens on the day when their new citizenship was celebrated.



PACIFIC MUNICIPALITIES

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

WRITE FOR CATALOGS

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dodge C. P. A. 311 California St. S. F.

Asphalt Machinery

A. L. Young Mch. Co. 26 28 Fremont St. S. F.
Robert Asphalt Paving Co. S. F. & L. A.

Arch Terra-Cotta

Coddling McBean & Co. Crocker Bldg. S. F.
Steiger Terra-Cotta & Pottery Wks. 29 Mills Bldg. S. F.
N. Clark & Sons 127 141 N. Iowa St. S. F.

Automobile Public Service Wagons

The Thomas B. Jeffery Co. 1225 Valencia St. S. F.
Reliance Auto. Co. 312 Van Ness Ave. S. F.
Anteuian La France Fire Eng. Co. 660 Mission St. S. F.
American Motors Co. 807 Golden Gate Ave.
Consolidated Motor Car Co. 312 Van Ness Ave.
Gorham Eng. & Fire App. Co. 48 Fremont St. S. F.
Webb Motor Fire Apparatus Co. 880 Montgomery St. S. F.

Bells

W. T. Garratt & Co. 277 279 Fremont St. S. F.

Bitulithic Pavement

Warren Brothers Company, Los Angeles, Cal.

Blue Prints

So. Cal. Blue Print & Supply Co. 806 Market St. Bank Bldg. Los Angeles.

Bridge Builders

E. J. Johnston Co. Wells Bldg. Bldg. S. F.

Concrete Construction

Henry Con. Co. Inc. 171 Market St. S. F.

Concrete Mixers

Cal. Hydr. Eng. & Supply Co. S. F. and Los Angeles.
Robert Asphalt Paving Co. S. F. & L. A.

Constructing Engineers

Fredk. C. Roberts & Co. 461 Market St. S. F.
Cal. Hydr. Eng. & Supply Co. S. F. and Los Angeles.
Geo. E. Dow Pumping Engine Co. S. F. & L. A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg. S. F.
Hunter & Hudson, Monadnock Bldg. S. F.
American Engineering Contractors Co. 1081 St. S. F.
Stephen E. Newcomb, St. Nat. Bldg. S. F. and

Culverts

Cal. Conglomerate Culvert Co. S. F. and Los Angeles and
W. Berkeley.
St. Nat. Conglomerate Culvert Co. S. F.

Dump Carts and Wagons

A. L. Young Mch. Co. 26 28 Fremont St. S. F.
Robert Asphalt Paving Co. S. F. & L. A.

Electrical Plants and Machinery

A. L. Young Mch. Co. 26 28 Fremont St. S. F.

Engravers and Bond Printers

A. Carlisle & Co. 281 Bush St. S. F.
Schmidt Lith. Co. Second & Bryant Sts. S. F.
Sierra Art Eng. Co. Front & Com. Sts. S. F.

Engineers' Supplies

W. T. Garratt & Co. 277 279 Fremont St. S. F.

Fire Department Equipment

Gorham Eng. & Fire App. Co. 48 Fremont St. S. F.

Fire Engines

Gorham Eng. & Fire App. Co. 48 Fremont St. S. F.
Squires & Byrne Co. 565 567 Mission St. S. F.
Pacific Fire Extinguisher Co. 507 Montgomery St. S. F.

Fire Hose

Gorham Eng. & Fire App. Co. 48 Fremont St. S. F.
New York Belting & Packing Co. 129-131 First St. S. F.
The Gutta Percha & Rubber Mfg. Co. 34 Fremont St. S. F.
The Diamond Rubber Co.
Eureka Fire Hose Mfg. Co. 54 58 Fremont St. S. F.
Squires & Byrne Co. 565 567 Mission St. S. F.
Bowers Rubber Works, San Francisco.

Fire and Police Boats

Gorham Eng. & Fire App. Co. 48 Fremont St. S. F.

Fire Pumps

Geo. E. Dow Pumping Engine Co. S. F. & L. A.

Gasoline Engines

Cal. Hydraulic Eng. & Supply Co. S. F. and Los Angeles.
Gorham Eng. & Fire App. Co. 48 Fremont St. S. F.

Inspections and Tests

Robt. W. Hunt & Co. 418 Montgomery St. S. F.

Machine Works

W. T. Garratt & Co. 277 279 Fremont St. S. F.

Municipal Accountant

William Dodge C. P. A. 311 California St. S. F.

Municipal Castings

Geo. E. Dow Pumping Engine Co. S. F. & L. A.
Pacific Foundry Co. 18th & Harrison St. S. F.

Municipal Engineers

Fredk. C. Roberts & Co. 461 Market St. S. F.
Sloan & Robson, Nevada Bank Bldg. S. F.
Hunter & Hudson, Monadnock Bldg. S. F.

Municipal Lighting Plants

Fredk. C. Roberts & Co. 461 Market St. S. F.

Municipal Printers

A. Carlisle & Co. 281 283 Bush St. S. F.

Municipal Water Works

Fredk. C. Roberts & Co. 461 Market St. S. F.
Geo. E. Dow Pumping Engine Co. S. F. & L. A.

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Office Furniture

H. S. Crocker Co., 674 Mission St.

Pavement MaterialsBarber Asphalt Paving Co., S. F. and L. A.
Warren Brothers Company, Los Angeles, Cal.**Pumping Machinery & Supplies**

California Hydraulic Eng. & Supply Co., San Francisco & Los Angeles

W. T. Garratt & Co., 277-279 Fremont St. S. F.

Pacific Fire Extinguisher Co., 507 Montgomery St., S. F.

Geo. E. Dow Pumping Engine Co. S. F. & L. A.

Playground Apparatus

A. L. Young Machinery Co., S. F.

Road Machinery

The Good Roads Mach'y Co., Ft. Wayne, Ind.

A. L. Young Mach'y Co., Fremont St., S. F.

Barber Asphalt Paving Co., S. F. & L. A.

Road Oils

Standard Oil Company

Roofing

Barber Asphalt Paving Co., S. F. and L. A.

Rubber Goods

Squires & Byrne Co., 565-567 Mission St. S. F.

The Diamond Rubber Co.

Bowers Rubber Works, San Francisco

Sanitary Wiping Rags

The Raychester Co., 1448 Folsom St., S. F.

Scrapers

A. L. Young Mach'y Co., Fremont St., S. F.

Sewage Pumps

Geo. E. Dow Pumping Engine Co. S. F. & L. A.

Sewer (Concrete)

Esterly Con. Co. Inc., 717 Market St., S. F.

Sewer Fittings

Pacific Foundry Co., 16th & Harrison, S. F.

Sewer Pipe and Terra Cotta

Gladding, McBean & Co., Crocker Bldg., S. F.

Steiger Terra Cotta Co., Mills Bldg., S. F.

N. Clark & Son, 112-114 Nat'l St., S. F.

Sewer Systems

Sloan & Robson, Nevada Bank Bldg., S. F.

Sidewalks (Cement)

Esterly Con. Co. Inc., 717 Market St., S. F.

Steel Protected Concrete Co., Phila., Pa.

Street Signs

A. L. Young Mach. Co., S. F.

Street Sweepers

A. L. Young Mach'y Co., Fremont St., S. F.

C. A. Blume Con. Co., 185 Stevenson St., S. F.

Water Meters

Pittsburg Meter Co., San Francisco

Water Works Equipment

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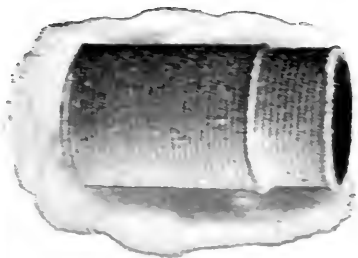
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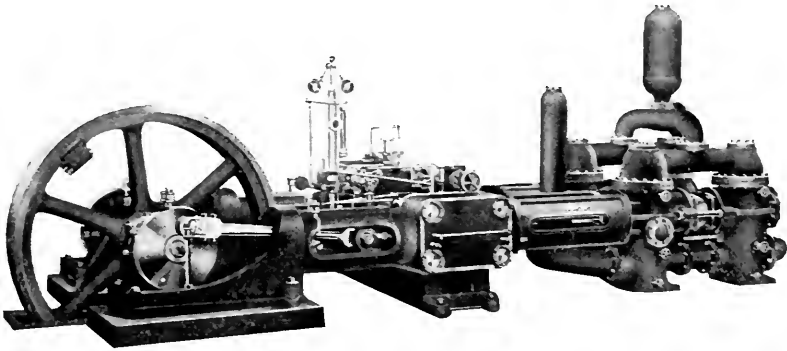
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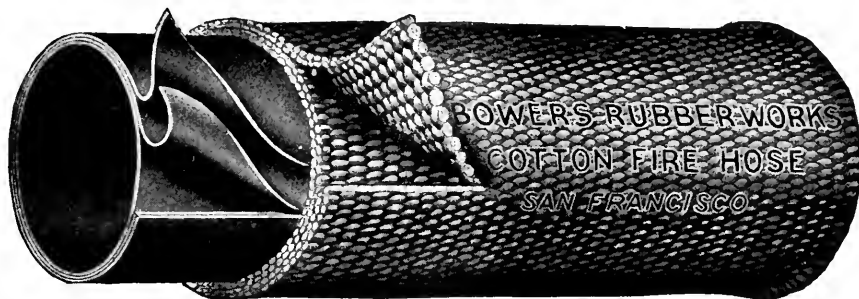
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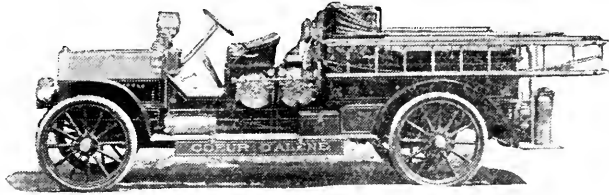
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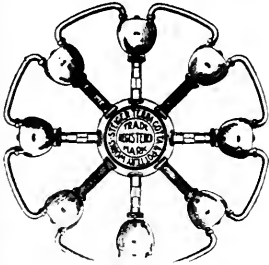
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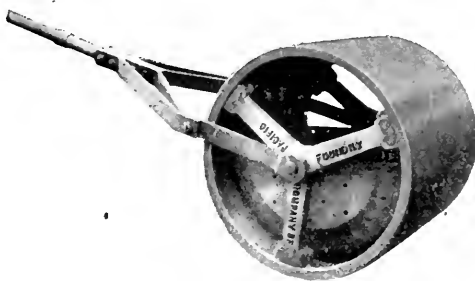
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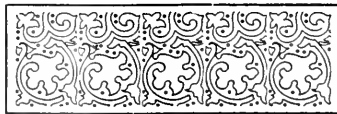
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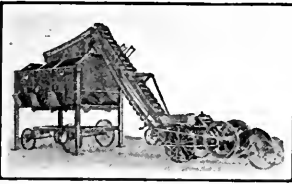
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THE world-famed Orange Grove Avenue, Pasadena, Cal., two miles long, is being laid with Bitulithic, selected by unanimous vote of abutting taxpayers after consideration of all kinds of pavement.

"Resolution of Intention No. 2952"

"A Resolution of the City Council of the City of Pasadena and its intention to improve a portion of Orange Grove Avenue in said City."

"Be it resolved by the City Council of the City of Pasadena that Orange Grove Avenue in the City of Pasadena, from the center line of Colorado Street, to the north line of Columbia Street, be graded and paved with Bitulithic pavement on a bituminous base."

BITULITHIC has been adopted for Wilshire Boulevard, the finest boulevard in Los Angeles leading to the Pacific Coast resorts.

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Choice of Bithulithic Ends Bitter Contest Among Residents of Fashionable Thoroughfare

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The reason for the intense interest of the property owners on the street is found in the fact that the street is one of the finest in the city and that the paving proposed will make it the most expensive, considered as a thoroughfare alone. The social and business prominence of most of the property owners on the boulevard made the discussion between them as to means and methods of importance also.—

(Extract from *Los Angeles, Cal., Herald*, June 28, 1911.)



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VOL. XXV THIRTEENTH YEAR No. 4

EDITORS - - H. A. MASON AND W.M. J. LOCKE
EDITORIAL OFFICE - NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO
PUBLICATION OFFICE, - - SANTA CLARA, CALIFORNIA

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Published Monthly. Yearly Subscription, \$2.00 in Advance. Single Copies, 25 Cents

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East San Jose	Loyalton	Riverside	Vacaville
Elsinore	Madera	Ross	Vallejo
Emeryville	Martinez	Sacramento	Ventura
Escondido	Marysville	San Bernardino	Venice
Etna	Merced	San Diego	Visalia
Eureka	Mill Valley	San Francisco	Watsonville
Fairfield	Modesto	San Jacinto	Whittier
Ferndale	Monrovia	San Jose	Willits
Fort Jones	Monterey	San Leandro	Winters
Fowler	Mountain View	San Luis Obispo	Woodland
Fresno	Napa	San Mateo	Yreka
	National City		

Every city belonging to the League of California Municipalities is entitled to a free copy of this magazine every month for each of its officials; if not received kindly notify the Secretary. See that your City is in the above list.

PACIFIC MUNICIPALITIES

A Journal for Progressive Cities

VOL. XXV

NOVEMBER 30, 1911

No. 4

A COMMENT ON THE CONVENTION AT SANTA BARBARA

It will undoubtedly be conceded by those who have followed its history and growth that the League of California Municipalities is rapidly becoming one of the most powerful organizations in the state, and there is undoubtedly no question on this point by those who had the good fortune to attend the Fourteenth Annual Convention recently held at Santa Barbara. Each year has witnessed an increase both in attendance and interest. At the meeting a year ago in San Diego there was a total of 266 people in attendance, while those registered at Santa Barbara number 345.

It is generally conceded that the various papers presented at this meeting were of exceptionally high character, and they certainly reflect great credit on their authors. It is very doubtful indeed if there is any other similar organization in this country, which has ever been so well favored in this respect. In every case there was evidence of profound study and most thorough investigation, and altogether many valuable ideas were brought forth, which can be of much value to those in whose custody there has been reposed for the time being the sacred responsibility of administering municipal government.

Many of the suggestions given out have already been taken up by the public press and made the subject of favorable comment.

The facilities afforded by the Hotel Potter for holding a convention of this character were exceptionally fine. The many meeting halls and committee rooms were commodious and handily situated, and the acoustic and lighting properties were all that could be desired. In addition to this, the hotel management were most courteous and obliging and did everything in their power to assist both the officials and the exhibitors in making the meeting a success. The comment was freely made that it will probably be a long time before the League will secure better facilities for holding a convention than those afforded by the Hotel Potter.

The convention was called to order shortly after 2 o'clock, Monday afternoon by Hon. A. E. Dodson of San Diego, First Vice President of the League. He took the chair by reason of the absence of former Mayor Hodghead of Berkeley, President of the League, who had been on an extended European trip and was unable to reach California in time to preside over the

meeting, very much to his regret. Mr. Dodson opened the meeting with a few appropriate remarks and concluded by introducing Hon. Clio L. Lloyd, Mayor of Santa Barbara. The latter made a happy address and on behalf of his townspeople extended the delegates a cordial welcome. A suitable response to this address was made by M. T. Drulard, former Mayor of Santa Cruz and 2nd Vice-President of the League.

The report of the Secretary was then read and submitted to the convention. It showed an addition to the rolls of eight new cities since the last meeting, making a total membership of 131 cities and towns. The report of the Secretary called attention also to the new legislation of benefit to municipalities which had been secured since the last meeting through the league and its committees, referring in particular to the following:

The "Improvement Act of 1911", being a simplification of the old Vrooman Act.

The Public Utility Commission Bill (Senate Constitutional Amendment No. 47).

The Commission form of Government for 5th and 6th class cities in an optional form.

An Act making the office of marshal appointive in sixth class cities.

A uniform reporting bill, prepared at the suggestion of the State Controller.

The report of the Secretary in full is printed elsewhere in this number.

The next matter taken up was the reception of a report from Mayor Davison of San Jose on the *International Municipal Congress and Exposition* held recently in Chicago. The report gave a brief description of the various exhibits which were seen at the Exposition and also a synopsis of some of the important

papers delivered at the Congress. Particular attention was called to the resolution adopted by the Congress indorsing and pledging participation in another International Municipal Congress to be held in San Francisco in 1915 under the auspices of the League of California Municipalities. The full report of Mayor Davison will also be found in the report of the full proceedings.

These matters being disposed of the Convention got down to real business. The first number on the program was an address by George W. Robertson, Engineer of the Board of Fire Underwriters of the Pacific; the title of his subject was "*Forms of Fire and Building Ordinances for Small Towns.*" Mr. Robertson had been requested to speak on this particular subject by the Secretary's office, because of the fact that frequent requests are made for copies of ordinances which are approved by the fire underwriters. In many small towns building ordinances are unknown. This is a serious mistake, as many fires would be avoided if proper construction was insisted upon, particularly in relation to the building of chimneys.

However, Mr. Robertson laid particular stress on the fact that it was not so much a matter of new ordinances but rather a more strict enforcement of present ordinances that is desired. Ordinances that are not enforced are not only worthless but actually harmful, as they lead to general disrespect and disregard of all law. And this then was the principal point brought out by Mr. Robertson, to-wit: that the most desirable thing to be secured in municipalities throughout the state is a more strict enforcement of the ordinances now on the books. In conclusion, he said that the Board of Fire Underwriters would prepare a number of model ordinances suitable for small cities and

towns and submit them through the Secretary's office.

Following Mr. Robertson there was an address by Charles N. Kirkbride, City Attorney of San Mateo, who described a new feature inaugurated in his city in the construction of fire department buildings. Instead of erecting a fire house simply, they have added club rooms and social halls for the use of the firemen and general public. At the conclusion of the discussion which followed Mr. Kirkbride's address an adjournment was taken till 8 P. M. for the formal opening of the Municipal Exposition.

This feature of the league meetings has apparently come to stay, and there is every reason why it should. It is highly educational and probably as profitable to the delegates as to the exhibitors, for it is by this means and this means only that city officials are enabled to see the latest and most up-to-date machinery, materials, and supplies used in municipal public work. They also have an opportunity here of discussing with one another the merits of the various things exhibited and thereby often secure information of inestimable value to their respective towns. As we said before, this is really the only opportunity they have for doing this, as the expense of transporting goods of this nature to every little city and town in the state would make it practically impossible. The Exposition was formally opened by the Hon. Geo. W. Stone, Mayor of Santa Cruz, who delivered a forcible address wherein he pointed out the many advantages to be derived from this feature of the meeting both to exhibitors and the municipalities.

One of the most interesting exhibits was that of the West Disinfecting Com-

pany of New York, showing some of the various means used by municipalities throughout the country for the purpose of disinfecting and securing better sanitary conditions.

Adjoining the booth occupied by the West Disinfecting Co. was an exhibit by the State Board of Health, and which was principally in the nature of a pure food show. Samples of many of the common articles of food were shown here side by side with the impure or adulterated articles. Pieces of cloth constituting all colors of the rainbow, each piece having been dyed with the poisonous dyes obtained from these impure foods formed an interesting feature of this exhibit. Here also, a lot of live mosquitoes were shown; there were several varieties including the one which carries the germ of malaria. A demonstration was made by the West Disinfecting Company, of the best method of killing these pests. Another interesting exhibit here consisted of the preserved bodies of four or five ground squirrels which had been afflicted with the bubonic plague, showing the effects of the plague in all its various stages.

The California Corrugated Culvert Company of Berkeley and Los Angeles had a fine exhibit of metal culverts. The Standard Corrugated Pipe Company had a similar exhibit.

In the line of municipal and road making machinery there were exhibits from the A. L. Young Machinery Company of San Francisco; the Austin-Western Company Ltd. and the Orenstein-Arthur Koppel Co. of San Francisco and Los Angeles. The Gamewell Fire Alarm Telegraph Co. had a fine exhibit showing their various fire alarm and police telegraph systems used in many cities and towns throughout the country. A portion of the exhibit was in working operation, and practical

demonstrations were made of the sending and recording of alarms.

Another exhibit which attracted considerable attention was that of the Gorham Engineering and Fire Apparatus Company. They are the agents for the well-known Seagrave motor-driven fire engine, sixty-one of which are in use on the Pacific Coast.

The Pacific Clay Products Publicity Bureau displayed samples of the various kinds and sizes of vitrified salt-glazed sewer pipe. Another exhibit of this material was made by the Pacific Sewer Pipe Company of Los Angeles.

The Destructor Company of New York, manufacturers of garbage incinerators, had photographs of the many

large quantities at Richmond, California.

The Union Oil Company also had an exhibit of similar products. The Braun-Knecht-Heimann Co. exhibited a centrifugal oil tester for ascertaining the amount of water contained in a sample of oil. Another interesting instrument also exhibited by them was an asphalt tester.

A Carlisle & Co., the well known stationers, printers and bookbinders of San Francisco, had an interesting display of the latest thing in books and forms for municipal records and accounts; also samples of printed and lithographed bonds of which they make a specialty.

Another exhibit of interest was made



STANDARD OIL EXHIBIT

plants they have erected on the Pacific Coast and elsewhere throughout the world. This is the company which was recently awarded the contract for building two garbage incinerators for San Francisco.

Another interesting exhibit was that of the Neptune Meter Company of New York.

One of the most attractive features of the Exposition was an exhibit made by the Standard Oil Company, and consisted of a series of miniature oil wells in operation, all of them actually pumping real oil. They displayed many samples also of their celebrated Richmond Road Oil, which they turn out in

by the Dahlstrom Metallic Door Co., manufacturers of metal doors, window casings, etc. Goods of this nature are necessary in the construction of a building claiming to be absolutely fire proof.

J. E. Ward of Los Angeles, manufacturer of a liquid Asphalt Atomizer, was another exhibitor. He had a full-size machine on hand and made demonstrations at stated periods on the hotel grounds.

The builders of roads and highways were well represented. The Warren Brothers Company of Boston showed samples of their patent pavement and had photographs and statistics galore to evidence the popularity of "Warrenite"

and "Bitulithic". The Barber Asphalt Paving Company were also on hand with pamphlets and testimonials. The City Street Improvement Company of San Francisco, the Ransome-Crummey Co. of Oakland, the California Liquid Asphalt Co., of Santa Barbara, and the Worswick Street Paving Co. of Fresno, all had exhibits of some character of street pavement which attracted more or less attention and undoubtedly proved instructive to the delegates. The construction of streets and highways is one of the principal problems before the city officials and will likely remain so for all time.

The American Glass Sand Company of Los Angeles furnished another interesting exhibit. They claim to have the best sand in the west for building and paving purposes. Samples of this sand, from the coarsest to the finest grades, were displayed in glass jars.

Last, but not least, was the exhibit of the Glazed Cement Pipe Co. of Los Angeles, who are engaged in getting out a cement sewer pipe which they claim is equal to vitrified clay pipe.

The Reinforced Concrete Pipe Co., were exhibitors somewhat in this line.

Altogether the Exposition was a decided success and quite satisfactory to both exhibitors and officials. An excellent brass band discoursed operatic and the latest popular airs in the Exposition Hall every evening.

On Tuesday, the second day of the convention, the entire body assembled in the morning at the Tally Theater to listen to talks on health problems, illustrated with moving pictures. Preceding these health pictures were three reels of film showing the "improvements in San Francisco since the 1906 disaster." Owing to the haste in which these pictures had been taken and possibly for other reasons they did not show

up very well or do justice to the subject.

The Tally Theater in Santa Barbara is about twice as large as the ordinary moving picture theatre, but by 9:15 A. M., it was packed to the doors. After the San Francisco pictures had been run off, the meeting was turned over to Dr. William F. Snow, Secretary of the State Board of Health, who delivered some appropriate remarks and introduced Dr. Geo. E. Tucker of Riverside as the first speaker. This gentleman made a short preliminary talk by way of explanation and introduction to the first pictures, which were entitled "*The Christmas Seal*" and illustrated the awful housing conditions in the crowded tenement districts of many of our large cities, and showed how they may be improved. A little love story ran through the pictures in order to hold the interest.

The next picture was entitled "*Boil Your Water*" and suitable remarks preliminary to its introduction were made by Dr. William F. Snow. This reel of pictures showed the various forms of animal life often found in drinking water, magnified of course, a great many times. As the pictures were run off the speaker described the various wrigglers and germs that were shown, including the deadly typhoid. The first part of the pictures showed the various animalculae full of lusty life, crawling and wriggling about with great activity. Then the water was boiled, after which a drop was again put under the magnifying glass. The pictures now showed that all life in the water had been destroyed proving the efficacy of boiling the water.

The last reel of pictures was entitled "*Sweat the Fly*" and illustrated the offensiveness and danger to human life from the common house fly. Like the others the enrolling of these pictures was accompanied by a lecturer of the

State Board of Health. He told how ninety percent of these pests breed in manure piles, while the balance hatch out in garbage and other filth. The pictures showed the fly in all his stages of life and concluded depicting a swarm of flies feeding on a putrid fish and flying from thence to the nipple of a baby's bottle. There sat a baby smiling in his innocence, while the flies crawled over the nipple of his bottle and deposited thereon the germs of putrefaction with which their legs were covered. Throughout the cities and towns of this country, many thousands of such babies die every year. They die from intestinal diseases transmitted by the fly in the manner just stated. All these deaths are unnecessary and inexcusable, and the responsibility is up to you, Mr. Trustee, to see that there are no unnecessary deaths in your town. A proper disposal of manure and garbage is the solution, and this can be accomplished without any unreasonable burden on your citizens. These pictures of the fly evil are the kind that strike home, and it is safe to say that if it was in the power of the delegates who filed out of the Tally Theater that day, every city and town in California would not only have an ordinance for the proper disposal of garbage and manure but it would be rigidly enforced to the letter.

On returning to the Potter Hotel at 11:30 a. m., the delegates immediately re-assembled in the large hall to listen to the address of Mr. Colvin Brown of the publicity committee of the Panama-Pacific Exposition Company. President Moore was on the program, but a telegram was received saying his physician forbade his attendance, having overworked himself in connection with the entertainment of President Taft. However, Mr. Brown was a good substitute and told how the Exposition Company

would like to have the cities aid them. He was followed by Mr. Eric Lange, Mayor of Burlingame on "*A Model City at the Exposition*." At the conclusion of Mr. Lange's paper it was moved that a committee be appointed to formulate a general plan of participation. The motion prevailing, the chair appointed on such committee Chas. A. Murdock, Supervisor of San Francisco; Mayor J. Stitt Wilson, of Berkeley; Mayor Lange of Burlingame; D. D. Kellogg, Assessor of Pasadena, and Capt. John L. Schon, Commissioner of San Diego. Before the close of the convention this committee submitted its report, a full text of which is published elsewhere in this number.

Upon re-assembling after lunch the first matter taken up was the address of William Dolge, C. P. A., who had for his subject "*The New Financial Report to the State Controller*." Hon. A. B. Nye, the State Controller was present in person and tacitly indorsed all that Mr. Dolge said in regard to the requirements of the law. In the discussion which followed this paper, the necessity of a uniform system of reporting was brought out very strongly. It was shown that the only way you could compare the progress being made by different cities and towns was to have a uniform method of keeping accounts and records.

The paper on "*Franchises Under the New Constitutional Amendment*" by Percy V. Long of San Francisco, was read by Mr. Locke the Assistant Secretary, Mr. Long having been called home suddenly on account of the serious illness of his infant son.

The meetings of the Department of City Attorneys were held in a small hall on the lower floor. The first meeting was opened Wednesday p. m. by the Secretary of this department, Mr. P. G. Sheehy of Watsonville. In the absence

of City Attorney Andrews of San Diego, Mr. Rutherford of Napa was chosen to preside. A complete report of the department of city attorneys is published in the separate volume of the proceedings of the convention.

On Wednesday afternoon the department of engineers, councilmen and street superintendents was entertained with a splendid paper by Charles Gilman Hyde, Professor of Sanitary Engineering in the University of California, on the "*Purification of Water Supplies*." Those who were fortunate enough to hear this address claim it was one of the features of the convention.

The department of Clerks, Auditors and Assessors held their meetings in a small hall on the main floor. The program of this department had been prepared by the president D. D. Kellogg, Assessor of Pasadena, and it covered a multitude of subjects. The attendance was the best in the history of the League and much valuable knowledge was disseminated. A more complete account of the work of this department is published in the special book containing the full proceedings of the convention.

Among the best papers delivered at this convention was the one submitted to the entire body by the Hon. Frank K. Mott, Mayor of Oakland, on the subject of "*The Employment of Experts in the Administration of Municipal Government*." The Mayor took occasion to comment on some phases of the commission plan, expressing some doubt as to the sufficiency of the small legislative body for large cities. He told of the methods used in German cities, particularly with reference to the employment of expert officials. There they have no restriction as to residence; when a Mayor is wanted they advertise all over the empire and employ a man who has made good in some other city.

Mr. H. A. Mason, Secretary of the League, followed Mayor Mott with similar ideas on this subject and pointed out many of the advantages which would accrue to California cities and towns by the adoption of the plan suggested.

Wednesday evening a special session was found necessary to take up the subject of "SUGGESTIONS FOR REFORM IN TAXATION". Hon. J. Stitt Wilson, Mayor of Berkeley, was the first speaker. He delivered an eloquent and instructive address, advocating the introduction, in a measure at least, of the principles of the single tax. He showed a thorough knowledge of the subject and convinced his hearers of his earnestness and sincerity. Several others participated in the discussion of this question, notably Mayor Craig of Piedmont and Secretary Mason. At the conclusion of the discussion resolutions were adopted favoring home rule in taxation for the cities and towns of California.

Thursday morning, all meetings were again held in departments, the principal department being that of the engineers, councilmen and street superintendents. "THE IMPORTANCE OF PROPER SEWAGE DISPOSAL, WITH A REFERENCE TO THE IMHOFF TANK," by C. E. Gruusky, former City Engineer of San Francisco, was one of the most interesting talks. The Imhoff tank involves a new scheme for the disposal of sewage sludge and is therefore a matter of much interest to engineers and councilmen particularly.

Another subject of great importance and consequently one of much interest was that discussed by Professor Fred H. Tibbetts on "THE USE OF VITRIFIED SEWER PIPE." It was hoped that this subject would bring out some important facts concerning the relative

merits of vitrified clay pipe as compared with cement pipe, for use in sanitary sewers. According to the figures recently obtained by the Municipal Journal and Engineer over eighty percent of the pipe used for sanitary sewers is the vitrified salt-glazed variety. The clay pipe companies point out specific cases where cement pipe failed. On the other hand the cement people reply by alleging faulty construction and claim cement is now better understood and of better quality. The feeling is rather strong between the two and some of them have gone so far as to indulge in personalities. This is a very important question to municipalities as sewer systems are being installed constantly. Pacific Municipalities will take this question up again shortly and endeavor to learn more regarding the relative merits of the two kinds of pipe.

A description of the garbage incinerators about to be constructed in San Francisco, was ably given by F. K. Blue, Assistant City Engineer of that City. He was followed by Chas. E. Sloan, City Engineer of Mill Valley, on "*Garbage Incinerators for Small Cities*." The last subject is one of vital interest to cities and towns all over the state. In order to get rid of the "fly pest" and otherwise improve sanitary conditions, some effective method is necessary for the disposal of a city's garbage. The use of a dumping ground is the worst kind of a make-shift and establishes a breeding place for millions of flies. The incinerator which was described by Mr. Sloan is the one constructed by C. E. Moore, C. E., City Engineer of Santa Clara, and is one that has given entire satisfaction and is comparatively inexpensive to construct and maintain. A good garbage incinerator for towns under 10,000 population is very much in demand, not only in Cali-

fornia but elsewhere, and one having a low first cost and inexpensive to operate would find ready sale.

Another paper which proved of great interest to councilmen was the one by Frederick C. Roberts of San Francisco, on "CONDITIONS AFFECTING MUNICIPAL WATER PLANTS IN CENTRAL CALIFORNIA". Mr. Roberts has done a great deal of work in the construction of water plants and his paper was listened to with a great deal of attention.

On Thursday evening there was a talk by Chris P. Jensen, City Engineer of Fresno on "THE USE AND VALUE OF CORRUGATED IRON CULVERTS." His address was illustrated with stereoptican views and, together with the pictures, appears in full in this issue.

THE USE OF ASPHALTIC BASE OILS FOR ROADS AND STREETS was the subject of an address by Chas. A. Blackmar, Oil Inspector of Los Angeles. He was followed by George N. Randle, City Engineer of Sacramento, who delivered a paper on "*Oil Macadam Pavements*". Late in the evening there was an address by R. M. Morton, Engineer of the Highway Commission of San Joaquin County. His topic was "SUBSTANTIAL PAVEMENTS FOR STREETS AND HIGHWAYS."

Following Mr. Morton's talk there was quite an extended discussion on the relative merits of oil macadam as compared with a more substantial pavement, and it developed that quite a difference of opinion existed. It is generally conceded that an oil-macadam is far superior to an ordinary water-bound macadam. It is also conceded that an asphalt macadam is far better than oil-macadam. Oil macadam costs from 9 to 12 cents per square foot, while asphalt macadam costs 5 to 6 cents

more. It is desirable to ascertain mathematically, if possible, the comparative value of these different pavements, calculating the first cost, the quality, cost of maintenance and durability.

By special request and unanimous consent of the delegates Mr. George C. Warren, President of the Warren Brothers Company of Boston, was called upon for some remarks on this subject. Mr. Warren stated that he was rather reluctant to take part in the discussion of a subject in which everybody knew he had a deep personal interest. He treated the subject in a general way, however, and convinced those present that he was thoroughly acquainted with the pavement question. His remarks were instructive and were well received. It was nearly midnight when this department adjourned.

Friday morning Professor C. L. Cory delivered a very interesting address on MUNICIPAL LIGHTING PLANTS. His remarks indicated a very exhaustive investigation of the subject, and the full text of his address will prove of great interest and benefit to those cities and towns contemplating the acquisition or

construction of municipal lighting plants.

Upon conclusion of the discussion which followed Prof. Cory's address, reports of various committees were received and disposed of, and several resolutions were adopted. The reports and resolutions are published in full elsewhere in this number. The convention then proceeded to dispose of the final business remaining, to-wit, the election of officers. Vice President Dodson of San Diego was elevated to the executive chair by unanimous vote. Mayor Mott of Oakland was made First Vice-President and Mayor Stone of Santa Cruz Second Vice.

All the business of the convention then being concluded, a motion to adjourn was entertained and adopted, and the Fourteenth Annual Convention of the League of California Municipalities passed into history, with the general verdict that it was the greatest meeting in every respect since its inception. The next convention will be held in Berkeley next fall, the exact time to be fixed by the Executive Committee.

WM. J. LOCKE.



DELEGATES WHO ATTENDED THE FOURTEENTH ANNUAL CONVENTION AT SANTA BARBARA, OCT. 23-28, 1911

ALAMEDA—I. N. Chapman, Engineer.

ALBANY—George W. Browne, Trustee; E. D. Cushing, Mayor.

ALHAMBRA—H. H. Blacklidge, Engineer; C. W. Cameron, Trustee.

ANAHEIM—H. G. Ames, Attorney

AZUSA—Dr. D. W. Atkinson, Health Officer; W. P. Barnes, Trustee.

BERKELEY—J. Stitt Wilson, Mayor; E. O. Turner, Commissioner; M. L. Hanscom, Auditor; J. J. Benton, M. D., Health Officer; J. J. Jessup, Engineer.

BURLINGAME—August Berg, Trustee; Eric

Lange, Mayor; C. E. Dunshee, Treasurer; John F. Davis, Attorney.

CALISTOGA—Wallace Rutherford, Attorney.

CHICO—B. F. Hudspeth, City Clerk; Guy R. Kennedy, City Attorney; M. C. Polk, City Engineer.

COALINGA—W. R. Odom, City Clerk; H. S. Warren, M. D., Health Officer; C. A. Martin, Mayor.

COLUSA—A. B. Jackson, City Clerk; John A. Eybel, Mayor.

COMPTON—P. M. Lee, Clerk; J. W. Stone, Street Superintendent.

CONCORD—Chas. E. Sloan, Engineer.

CORONA—E. P. Kidder, Trustee.

COVINA—E. P. Warner, Trustee; F. G. Desery, Engineer.

FRESNO—H. F. Martin, Trustee; O. N. Cobb, Trustee; Jas. M. Collins, Trustee; Chris. P. Jensen, Engineer.

FULLERTON—Geo. C. Welton, Trustee; R. S. Gregory, Trustee.

GLENDALE—R. E. Chase, Health Officer.

HANFORD—D. A. Gamble, Trustee; Dr. A. W. Musgrave, Health Officer.

HAYWARD—Fred. Wm. Browning, M. D., Health Officer.

HEMET—J. M. Frazier.

HERCULES—S. S. MacKinley, Mayor; L. E. Hart, Clerk.

HUNTINGTON BEACH—R. M. Blodget, Attorney.

IMPERIAL—I. B. Funk, Engineer.

INGLEWOOD—H. A. Putman, Health Officer.

LIVERMORE—P. M. O'Donnell, Trustee; F. C. Lassen, Trustee.

LODI—John W. McMahon, Clerk.

LOMPOC—G. W. Meals, City Clerk; C. A. Reed.

LONG BEACH—C. O. Boynton, Clerk; B. Brown, Councilman; F. C. Finckle, Consulting Engineer.

LORDSBURG—Frank A., Lathrop; J. E. Hubble, M. D., Health Officer.

LOS ANGELES—Chas. A. Blackmar, Oil Inspector; T. M. Powers, Health Officer; J. B. Lippincott, Ass't City Engineer.

LOS BANOS—James V. Toscano, Trustee.

MADERA—Mary Ryerson Butin, Health Officer.

MARYSVILLE—G. W. Hall, Mayor; Waldo S. Johnson, Attorney.

MERCED—J. Reninghaus, Trustee.

MILL VALLEY—Chas. E. Sloan, Engineer.

MONTEREY—H. G. Jorgensen, Attorney.

MONROVIA—Walter F. Dunn, Attorney; W. H. Evans, Recorder; R. D. Adams; C. H. Reed, Clerk; H. S. Gierlich, Engineer.

NAPA—Wallace Rutherford, Attorney.

NEWMAN—Chas. E. Sloan, Engineer.

NEWPORT BEACH—Albert Herms, Street Superintendent.

OAKLAND—Frank K. Mott, Mayor; Philip Schuyler, Chamber of Commerce.

ONTARIO—E. W. Henry, Street Superintendent.

ORANGE—Adolph Dittmer, Mayor; M. Eltiste, Trustee; Wm. M. Brown, Attorney; G. G. Richards, Trustee; E. H. Smith, Trustee; Wm. M. Gregg, Trustee.

OXNARD—G. R. Hella, Trustee; S. G. Bennett, Engineer.

PACIFIC GROVE—Edward Berwick, Trustee.

PALO ALTO—C. C. Jordan, Mayor; B. G. Al-

len, President Chamber of Commerce; H. O. Jenkins, Health Officer.

PASADENA—D. D. Kellogg, Auditor; John Beyer, Street Superintendent; William J. Carr, Attorney; S. J. Van Ornum, Engineer.

PETALUMA—H. H. Kercheval, Councilman; E. S. Shaver, Street Superintendent.

PIEDMONT—Hugh Craig, Mayor; H. W. Thomas, Health Officer.

POMONA—S. P. Boyd, Councilman.

REDLANDS—R. M. Cheesman, Trustee; R. Warner Thomas, Clerk; J. H. Strait, Mayor; M. W. H. Williams, Trustee; J. J. Prendergast, Trustee; George S. Hinckley, Engineer; Charles H. Clock, Trustee.

REDWOOD CITY—J. L. Ross, M. D., Health Officer.

RICHMOND—O. R. Ludwig, Councilman; Chas. R. Blake, Health Officer; John J. Dooling, Councilman; H. D. Chapman, Engineer, and Street Superintendent.

RIVERSIDE—George E. Tucker, W. W. Darling, Superintendent of Streets.

ROSS—W. M. Brown, Trustee.

SACRAMENTO—E. J. Carriger, Trustee; Wm. K. Lindsay, Health Officer; J. T. Murphy, Trustee; J. H. Schacht, Trustee; Geo. N. Randle, Engineer.

SAN DIEGO—A. E. Dodson, Commissioner; John L. Selon, Commissioner.

SAN FRANCISCO—H. A. Mason, Secretary of the League; W. J. Locke, Assistant Secretary of the League; Percy V. Long, Attorney; John I. Nolan, Supervisor; John O. Walsh, Supervisor; Chas. A. Murdock, Supervisor; C. E. Grunsky, Consulting Engineer; F. K. Blue, Assistant City Engineer.

SAN JACINTO—E. T. Tanner, Trustee.

SAN JOSE—Walter G. Mathewson, Councilman; C. W. Davidson, Mayor; J. Robertson, Councilman; Roy E. Walter, Clerk; A. L. Whitman, Councilman; C. J. Farrell, Superintendent of Streets.

SAN LEANDRO—J. J. Gill, Mayor; L. J. Toffelmier, Trustee.

SAN MATEO—D. Bromfield, Engineer; C. W. Morse, Mayor; Chas. N. Kirkbride, Attorney.

SANTA ANA—Frank By, Mayor.

SANTA BARBARA—Thomas Garland, Street Superintendent; David A. Conrad, Health Officer; Clio L. Lloyd, Mayor; Alfred Davis, Clerk; A. J. Abraham, Councilman; E. G. Dodge, Councilman; J. S. Johnson, Councilman; Wm. Wyles, Councilman; W. P. Butcher, Attorney; E. E. Arrellanes, Councilman; Fred L. Johnston, City Engineer.

SANTA CLARA—G. J. Fenton, Clerk.

SANTA CRUZ—George W. Stone, Mayor; J. Leslie Johnston, Attorney; Allen S. Lozier, Street Superintendent; T. W. Drullard, Ex-Mayor; Duncan McPherson, Councilman; F. R. Cummings, Councilman.

SANTA MARIA—O. P. Paulding, M. D., Health Officer; C. L. Priesker, Attorney; R. J. Stephenson, Trustee.

SANTA MONICA—W. H. Parker.

SAWTELLE—A. B. Hromadka, Health Officer.

SEBASTOPOL—J. P. Kelly, Mayor.

SIERRA MADRE—C. W. Jones, Mayor; George B. Morgridge.

SONOMA—J. D. Wagon, Trustee; M. E. Cummings, Mayor.

SONORA—M. L. Scott, Trustee.

SOUTH PASADENA—F. R. Pierce, Superintendent of Streets; C. A. Whiting, Ben F. Dupuy, Engineer.

SOUTH SAN FRANCISCO—Dan McSweeney, Trustee.

STAUNTON—R. M. Blodgett, Assistant City Attorney.

STOCKTON—Chas. Southerland, Councilman; Burrell Armstrong, Councilman; L. F. Kuhn, Clerk; O. C. Wright, Superintendent of Streets; M. Brisco, Councilman; J. M. Gall, Councilman; Henry B. Budd, Engineer; D. J. O'Keefe, Councilman; George Sievers, Auditor.

TULARE—C. L. Smith, Trustee; H. C. Heitzeg, Mayor; Grant Cottle, Trustee; Henry Floer, Fire Chief.

Vallejo—W. J. Tormey, Mayor; J. B. McCauley, Commissioner; W. T. O'Donnell, Attorney.

VENICE—W. M. Kendall, Health Officer; G. F. Lewis, Engineer; F. K. McCarver, Trustee. George A. Hubbard, Fire Chief.

VENTURA—Wm. McGuire, Mayor; Edwin Isensee, Clerk; N. Peirano, Trustee; J. H. Hardy, Marshal.

VISALIA—A. R. Cutler, Mayor; A. R. Orr, Ex-Mayor.

WATSONVILLE—Jas. A. Hall, Mayor; P. A. Callaghan, Councilman; S. W. Coffman, Clerk; S. G. Sheehy, Attorney; F. H. Koepke Health Officer.

WHITTIER—Walter E. Butler, Clerk; A. W. Trice, City Engineer; G. H. Flanders, Trustee; R. E. Coppock, Trustee; D. Reid, Mayor; C. R. Holton, Attorney; J. C. Stevens, Street Superintendent.

WILLETS—Con H. Goldberg, Attorney.

WINTERS—A. Ritchie, Trustee.



Invited Guests Who Participated in the Discussions

Hon. A. B. Nye, State Controller; Hon. H. L. Henderson, Mayor of Astoria, Oregon; William Dolge, C. P. A., San Francisco; J. G. McMillan, County Surveyor, Santa Clara County, and President of the State Association of County Surgeons. Charles Gilman Hyde, Professor of Sanitary Engineering, University of California;

George W. McCoy, Delegate United States Government; C. L. Cory, Professor of Mechanical Engineering, University of California.



City, County and State Health Officers Who Participated in the Department of Public Health

Conducted by the State Board of Health

William F. Snow, Secretary California State Board of Health; Fred William Browning, M. D., Health Officer, Haywards; J. L. Ross, M. D., Health Officer, Redwood City; Chas. R. Blake, Health Officer, Richmond; F. J. McNulty, M. D., Health Officer, Siskiyou County; H. S. Warren, M. D., Health Officer, Coalinga; David A. Conrad, Health Officer, Santa Barbara; A. B. Hromadka, Health Officer, Sawtelle; Dr. L. Q. Thompson, Health Officer, Butte County; E. Sawyer, Health Officer, Los Angeles County; A. G. Bransford, Health Officer, Solano County; Wm. K. Lindsay, M. D., Health Officer, Sacramento County; H. O. Jenkins, Health Officer, Palo Alto; Mary Ryerson Butin, Health Officer, City of Madera and Madera County; Amelia Jensen, Health Officer, Sierra Madre; Dr. L. W. Atkinson, Health Officer, Azusa; Wm. Simpson, M. D., Health Officer, Santa Clara County; H. W. Thomas, Health Officer, Piedmont; H. T. Piercy, Health Officer, Piedmont; F. E. Corey, M. D., Health Officer, Alhambra; Dr. R. W. Musgrave, Health Officer, Hanford; J. J. Benton, M. D., Health Officer, Berkeley; F. H. Koepke, Health Officer, Watsonville; W. S. George, M. D., Health Officer, Contra Costa County; J. E. Hubble, M. D., Health Officer, Lordsburg; R. E. Chase, Health Officer, Glendale; Dr. W. A. Weedon, Health Officer, San Pedro; H. M. Cox, Health Officer, San Luis Obispo County; John Welerly, M. D., Health Officer, Orange County; O. P. Paulding, M. D., Health Officer, Santa Maria.



Exhibitors and Their Representatives at the Municipal Exposition Which Was Held in Connection With the Convention

West Disinfecting Co., of New York, Rep. by Montrose K. Newman; A. L. Young, Machinery Co., Rep. by C. E. Krath and A. L. Young; Gamewell Fire Alarm Co., A. J. Coffee, Agent, A. F. Brown and Roy Le Monie; Pacific Clay Products Publicity Bureau, Rep. by F. C. Davis; The Destructor Co., of New York, Rep. by E. H. Foster and Chas. L. Froding; California Corrugated Culvert Co., Rep.

by R. C. Force of Los Angeles, R. N. Clark, Berkeley; Frank S. Gaines, Stockton; A. J. Wagner, Oakland; E. C. Campbell, Los Angeles, and H. W. Force of West Berkeley; Neptune Meter Co., Rep. by Allen H. Nye and J. R. Barker; Standard Oil Co., Rep. by J. K. Firth and E. K. Percy; Standard Oil Company, Lubricating Dept., Rep. by C. B. Malloy; The Austin-Western Co., Ltd., Rep. by S. S. Smith, and J. W. French, Manager; Standard Corrugated Pipe Co., Rep. by L. M. Fletcher, S. F. and T. M. Teter of Los Angeles; Orenstein-Arthur Koppel Co., Rep. by H. J. Payne of Los Angeles, and D. W. Dodge, Acting Manager, San Francisco; A. Carlisle Co., Rep. by Chas. H. Ackerman and E. A. Hanrahan; Warren Bros. Co., Rep. by Geo. C. Warren, Boston, Mass., and W. B. Warren of Portland, Oregon, and Frank Reese of Los Angeles, Cal.; The Barber Asphalt Paving Co., Rep. by Hugh W. Vail, F. E. Webster and C. S. Kent; Gorman Engine and Fire Apparatus Co., Rep. by F. B. Shattuck; Henry R. Worthington of New York, Rep. by Ernest Cooke; City Street Improvement Co., Rep. by James H. Bishop, Pres., and J. R. Price, Engineer and Chemist; Ransom-Crummey Co., Rep. by H. Crummey, Ray Crummey and A. Kelleher, Oakland; California Liquid Asphalt Co., Rep. by J. M. Williamson, President, and Edwin F. Smith, Sec'y and Manager; Braun-Knecht Heimann, Rep. by Norman V. Lane and H. D. MacKinnon of Los Angeles; American Glass Sand Co., Rep. by Jos. Schumacher and O. F. Anstrong; Glazed Cement Pipe Co., Rep. by Arthur S. Bent; Pacific Sewer Pipe Co., Rep. by A. W. Danforth; The Barber Cobalt Paving Co., Rep. by D. Basil Alexander; Union Oil Co. of Cal., Rep. by F. H. Hamlin of San Francisco and Alex. Selater; B. F. Kierulff, Jr., & Co., Rep. by F. F. Foster, Los Angeles, Cal., H. W. Johns-Manville Co., Rep. by Frederick S. Mills; Worswick Street Paving Co., Rep. by S. Bader; A. T. George Co. of Los Angeles, Rep. by A. T. George; J. E. Ward & Co., of Los Angeles, Rep. by J. E. Ward; Chas. B. Kidder of Los Angeles, Cal.; Reinforced Concrete Pipe Co., of Los Angeles, Rep. by A. J. Meade.

mont; Mrs. Gem Barker Jenkins, Palo Alto; Mrs. F. E. Corey, Alhambra; Mrs. Lena J. Frazari, Hemet; Mrs. C. E. Pratz, San Francisco; Mrs. C. M. Haskins, San Francisco; Mrs. Charles Southerland, Mrs. Burrell Armstrong, Mrs. L. F. Luhn Stockton; Mrs. F. E. Webster, Miss M. A. Webster, Pasadena; Mrs. O. C. Wright, Mrs. M. Brisco and Mrs. J. M. Gall, Stockton; Mrs. Frederick S. Mills, Los Angeles, Cal.; Mrs. R. M. Blodget, Huntington Beach, Cal.; Mrs. Frank Reese, Los Angeles; Mrs. C. S. Kent, Los Angeles; Miss Francis Sherman, Buffalo, N. Y.; Mrs. Marion R. Budd, Stockton; Mrs. R. C. Force, Santa Monica.

Total number in attendance 345.

Number of municipalities represented 89.



REPORT OF SECRETARY

To the Members of the League of California Municipalities.
Gentlemen of the 14th Annual Convention:

It is with pleasure that I am permitted to again present an annual report covering the work of the League for the past year.

We have increased the membership by the following additions: Compton, National City, Fowler, Arcata, Hillsborough, Tracy, Venice.

The following having allowed their dues to lapse have renewed their membership: Black Diamond, now Pittsburg, Auburn.

Los Angeles refused to pay dues and was suspended much to the regret of some of its officers.

The year shows a net gain of eight and the present membership is 131 cities and towns in the state.

LEGISLATION

Close attention was given to legislation during the last session of the legislature. Very little difficulty was experienced in getting any legislation wanted.

One important act passed was a new street improvement law which is considered superior to the Vrooman Act



Ladies in Attendance

Mrs. Waldo S. Johnson, Marysville; Mrs. H. A. Mason, San Francisco; Mrs. A. B. Nye, Sacramento; Mrs. W. J. Locke, San Francisco; Mrs. Frank K. Mott, Oakland; Mrs. George W. Stone, Santa Cruz; Mrs. Con. H. Goldberg, Willets; Mrs. J. L. Ross, Redwood City; Mrs. A. B. Jackson, Colusa; Mrs. C. C. Jordan, Palo Alto; Mrs. A. Berg, Burlingame; Mrs. D. Reid, Whittier; Mrs. Harry Walter Thomas, Pied-

and it is now being used quite extensively.

The League committee spent a great deal of time in the preparation of this act and upon its adoption prepared a set of forms to be used under its provisions. These forms were printed in pamphlet form and sent to each city belonging to the League. It was also arranged that a supply of forms be printed by a San Francisco publication house (A. Carlisle & Co.) which can be purchased as needed and a discount allowed to all the League members.

We failed to secure the passage of the Public Utility Commission bill in the form this League had recommended, but compromised on a Constitutional Amendment (Senate Amendment No. 47) which has just been ratified. The subject will probably be given further attention at the coming special session of the legislature. We will have to give it some attention.

The commission form of government was secured for the 5th and 6th class cities in an optional form.

At last, after many years of failure, the legislature passed an act making the marshal of 6th class cities appointive.

While the League had never formally endorsed the initiative, referendum and recall, it was seen that the Legislature was committed in favor of the measures, so Mr. Kirkbride and the secretary assisted in putting the measures in shape.

A uniform reporting act was also prepared at the suggestion of the State Controller and became a law. We hope that good results will be produced.

A number of other laws beneficial to the municipalities of the State were passed in the Legislature and we have every reason to feel gratified for its consideration.

I wish to say in this connection that I have attended every session of the leg-

islature for the past twelve years, and until this year the hardest work done was in hunting for bugs in the bills. The last legislature was the first one which did not attempt to pass some scheme to favor some special interest as against the welfare of the municipalities of the State. It was a great relief to find a legislature anxious to do what was right. I believe that this League should pass a suitable resolution of thanks.

INTERNATIONAL EXPOSITION

The last convention adopted a resolution favoring the holding of an International Exposition and Congress in San Francisco in 1915. Preliminary steps have been taken to secure this. Mr. Locke attended the International Congress in Chicago last month and with the cooperation of Mayor Davidson of San Jose, succeeded in having a resolution adopted pledging that body to meet in San Francisco in 1915, under the auspices of this League. We hope to co-operate with the Panama-Pacific Exposition Company in this matter which will be discussed further during this meeting.

The information bureau under the charge of Mr. Locke seems to be giving satisfaction. Questions come in every day and many of these require careful consideration and necessitate research in order that trustworthy replies may be given. As to whether the answers have been satisfactory is not for me to say. We have done the best we could. I think that the magazine is improving, and it is our hope that it will continue to do so. We would appreciate it if more city officials would contribute to its pages. No doubt but that many of you would do so if you could find the time. Let us hear from you please, on some timely topic—something your city has

done or proposes to do. It encourages us to have you take an interest in our common work. Please read the magazine—some city officials don't—too busy. Read the advertisements too—maybe you'll find something your own town needs. Don't slur the magazine. If you do we hear of it and it hurts. We've been hurt that way once or twice. Still we are good natured.

I want to tell you that your President, Mr. Hodghead has been faithful in his interest in the League. He has made many good suggestions and rendered good advice. He deeply regrets not to be able to be here.

The following is the annual financial report:

FINANCIAL STATEMENT

Cash balance according to last report	\$ 582 81
Error in footing.....	.02
Omission of items of exchange	
Charges on bank collections	4 15 4 17
<hr/>	
Actual cash balance Dec. 1, 1910	578 64
Receipts for dues as per list.....	\$ 2240 15
<hr/>	
Total.....	\$2818 79
Expenditures as per books and vouchers herewith.....	2414 58
<hr/>	
	404 21
Less exchange items.....	70
<hr/>	
Actual cash balance this date....	403 51

BANK STATEMENT

Cash balance November 30, 1910.....	\$ 508 64
Deposits during the year.....	2170 15
<hr/>	
	\$ 2678 79
Checks paid to Sept. 30.....	\$2203 65
Exchange Charges.....	70
<hr/>	
	2204 35
<hr/>	
Balance Sep. 30, 1911.....	474 44
Less checks apc Convention League...	200 00
<hr/>	
Bank Balance Sep. 30, 1911.....	\$ 274 44

BANK ACCT. SINCE OCT. 1

Bank Balance.....	\$ 274 44
Deposits.....	440 00
<hr/>	
	714 44
<hr/>	
Checks drawn.....	\$125 93
	70 00
<hr/>	
	15 00 \$ 210 93
<hr/>	
	\$ 503 51
Cr. apc. Convention League.....	100 00
<hr/>	
Actual Cash Balance.....	\$ 403 51

Explanation—The Convention League paid this League \$300 to pay expenses of representatives to Chicago, which sum was deposited in bank. From this \$200 was drawn leaving \$100 which is to be returned.

Santa Barbara, October 27, 1911

We, the undersigned, members of the department of Auditors, hereby certify that we have examined the books and accounts of the League and find the statements of receipts and disbursements tally with the bank balance.

D. D. KELLOGG

J. W. McMAHON.

PRINCIPAL RESOLUTIONS ADOPTED AND COMMITTEES APPOINTED AT THE SANTA BARBARA CONVENTION

Home Rule in Taxation

RESOLVED, That a special committee of three be appointed to prepare and present to the next session of the legislature a proposed amendment to the con-

stitution providing for Home rule in matters of Taxation by the cities and counties of the state.

The delegates appointed on the committee were Prisker of Santa Maria, Wilson of Berkeley and Mason of San Francisco.

Resolutions by Clerks, Auditors and Assessors

RESOLVED, By the department of Clerks, Auditors and Assessors of the League of California Municipalities, that we request the General Body of the League now in session, to urge upon all of its members, and particularly upon the councilmen and trustees throughout the state, the importance of a proper representation of the accounting officers at the annual conventions of the League.

We feel that the importance of this branch of municipal service has not been fully recognized in this League; that the benefits to be derived from the convention of the Clerks, Auditors and Assessors are as great as from those of Councilmen, Engineers or others. We realize that the larger and more diversified the attendance, the greater will be the resulting benefits to the several municipalities.

We request that this matter be put forcibly before the membership of the League, to the end that next year the accounting department will be as largely represented as any other.

Committee on Highways

WHEREAS, The people of California have recently voted eighteen million dollars for the building of good roads, which vast sum we are anxious to see expended wisely, judiciously and economically; therefore be it

Resolved, That a committee of three (3) engineers, familiar with the latest and best methods of road and street construction, be appointed from this organization to carefully observe the manner and methods pursued in doing this work and report thereon from time to time to the Secretary of the League in writing, which said reports shall be published in our official organ, PACIFIC MUNICIPALITIES.

The committee appointed consists of Johnson of Santa Barbara, Jessen of Fresno, Jessup of Berkeley, and Van Ornum of Pasadena.



REPORT OF SPECIAL COMMITTEE ON PARTICIPATION IN PANAMA PACIFIC INTERNATIONAL EXPOSITION

Santa Barbara, Oct. 26, 1911.

To the California League of Municipalities,
Gentlemen:

Your special committee to whom was referred the consideration of the matter embraced in the addresses made on Tuesday morning, beg leave to report that after mature consideration they have prepared the accompanying resolutions, and respectfully recommend their adoption.

CHAS. A. MURDOCK

J. STITT WILSON

ERIC LANGE

D. D. KELLOGG

JOHN L. SEHON

"WHEREAS, There is to be held, concurrently with the Panama Pacific International Exposition at San Francisco, the Panama-California Exposition at San San Diego—an enterprise which in no sense represents opposition or rivalry but is designed to supplement and complete through special emphasis of ethnological association and the relation of California to the Latin-American Republics and Spanish Civilization, and

WHEREAS we recognize the courtesy of San Diego in yielding to San Francisco the claim to the greater Exposition of International scope, therefore, be it

RESOLVED, That we hereby express our appreciation of the heroic undertaking of the citizens of San Diego, which they are carrying forward with signal promise, and extend to them our heartiest endorsement and the hope that

their efforts may meet their fullest expectation and enhance the honor and fame of our beloved state."

WORLD'S MUNICIPAL EXHIBIT AND CIVIC
AND SOCIAL CONGRESS

WHEREAS, There is to be held on these shores where Occident meets Orient, the great Panama-Pacific Exposition, celebrating the advance of civilization in general, and particularly the completing of the most monumental triumph of engineering in the history of man, and

WHEREAS multitudes of all nations of the earth will pour across continents and over seas of the Golden Gate of this Empire of the West, to exhibit and to witness the most magnificent achievements of mankind, in trade and commerce, in art and industry, in science and invention--the transcendent material greatness of this age of steel and steam and electricity, and

WHEREAS, the supreme problems of this age of material conquest are social and moral, and find their most acute expression in the centers of trade and industry, that is to say, in the city life of the people, therefore, be it

RESOLVED by the League of California Municipalities in annual conference assembled.

First, That we recommend that the Panama-Pacific International Exposition make provision for a WORLD'S MUNICIPAL EXHIBIT—including perhaps a Model City—a display of the most unique, significant and successful efforts of the cities of the world, to perfect and enhance civic life, and to improve the social and economic conditions of mankind.

Second. That in connection with this World's Municipal Exhibit there be held

a World's Civic and Social Congress at which the most advanced sociological thought concerning civic ideals and social and economic policies may be presented by the most world-renowned leaders in these fields.

Third. That this League shall appoint an Executive Commission of seven of its members, one of whom shall be H. A. Mason the Secretary of the League, to co-operate with the Directors of the Exposition in inaugurating this World's Municipal Exhibit, and Civic and Social Congress.

Fourth. That said Commission shall be empowered to fill vacancies; to appoint sub-committees covering the entire State of California; to enlist the interest of the cities of America and of the world, and to report back to this League at its next Annual Convention in 1912.

Fifth. That such Commission in conjunction with the Executive Committee of the League of Municipalities shall devise ways and means for the consummation of the plan.

Sixth. That it is the consensus of opinion that all the Municipalities of California should, through their public officials, be urged to participate by financial and moral support, to make the World's Municipal Exhibit and Congress the crowning effort of the hitherto successful career of the League, and one of the most impressive features of the Panama-Pacific International Exposition."

The Commission appointed in accordance with the foregoing resolution consists of the following gentlemen: Eric Lange, Mayor of Burlingame; Dr. T. W. Drullard, former Mayor of Santa Cruz; C. F. Weiland, Park Commissioner of Berkeley; H. A. Mason of San Francisco; Chas. N. Kirkbride, City Attorney of San Mateo; J. Stitt Wilson, Mayor of Berkeley; Percy V. Long, City Attorney of San Francisco

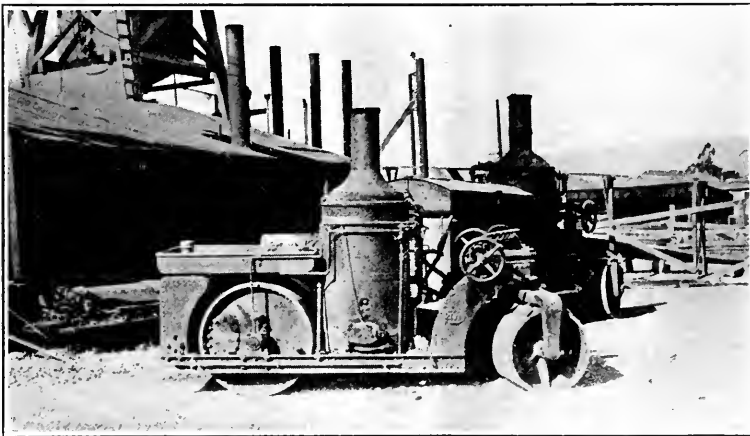
HEAVY ASPHALTIC ROAD OILS

BY E. N. PERCY

There are many communities in need of cheap roads. No other can be afforded, if indeed any at all can be built other than the marks of wagon wheels across the country. Our lumber and mountain districts are sparsely settled and unable to put in expensive roads. Many promising small towns are at present wholly unable financially to build any but the cheapest of pavements.

With due regard for the recognized advantages of six or eight inches of crushed rock or sheet asphalt or other

Specifications for the construction of roads in a given district should never be drawn until the district has been investigated with a view to ascertaining: first, the character of the ground on which the road must be built; second, the character and cost of materials available; third, the character and cost of the labor and apparatus available. If a good grade of crushed rock is available at reasonable prices it is without question the best road material that can possibly be used.



STEAM DRIVEN HOT ROLLER

pavements costing from \$1.50 to \$2.50 a square yard it has been found that macadams constructed with heavy asphaltic road oils are perfectly satisfactory provided the specifications are right and faithfully executed.

There are many districts in California prepared to spend one thousand to twenty-five hundred dollars per mile on their roads who are financially unable to spend more than this. The one construction coming within these limitations is macadam, either of the clay or crushed rock or road oil types.

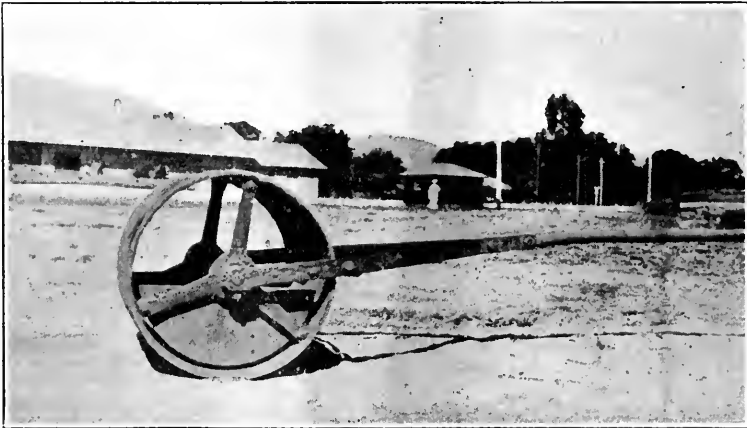
In connection with the use of crystalline crushed rocks it should be ascertained if an amorphous rock is available such as limestone, rotten quartz or granite, or a clay of an amorphous origin. In building macadam no matter what the binder, it is very necessary to have graded material. It makes no difference whether the coarsest material be a two inch crushed rock or a ten mesh sand, it should not be all of one size but graded down to two hundred mesh or finer. This is accomplished in practice by taking the material available and ascertain-

ing the voids. This is then mixed with a finer material proportionately to the voids. This finer material is preferably an amorphous rock which will easily disintegrate into an exceedingly fine material, reducing the voids to a minimum and filling the binder such as road oil with fine particles until it is very dense and compact. It should be born in mind that this reduction of voids to a minimum is not with the idea of saving cement binder but for the purpose of rendering the road more compact and the binder dense and hard.

A road or a part of a road constructed

struction of the oil asphalt surface proceeds as follows:

A layer of coarse crystalline material is placed about one inch deep; this is oiled by the penetration method with an amount of oil equal to the voids in the aggregate. The amorphous material is then applied, care being taken that it be graded sufficiently fine to enter the voids of the crystalline material. Heavy rolling is then resorted to for the purpose of crushing the amorphous material and forcing it as much as possible into the crystalline material. This specification assumes a crystalline material of



HAND FIRE ROLLER

with one grade of material, whether it be coarse crushed rock or sand, will be pulpy, wavy and soft to traffic, no matter what grade of oil is used as a binder; whereas if the material be carefully graded down, to the finest impalpable dust, it will be a firm, hard construction comparing favorably with any other asphaltic surface.

In the construction of this type the specifications should provide for the following cycles of operation: Assuming that the sub-grade has been laid the foundation may or may not be of an asphaltic-cemented character. The con-

struction of the oil asphalt surface proceeds as follows: Should smaller material or sand be used they should be mixed with the amorphous material before laying and then oiled. In this case a thin layer of sand should be applied to the oil surface before rolling with a cold roller, or a hot roller may be used dispensing with the extra coating of sand since heavy asphaltic oil will not stick to a hot roller and the hot roller tends to further increase the oil penetration. The process is then repeated until the asphaltic surface is of the desired thickness. A fine asphaltic finish cannot be produced on an oiled road unless the speci-

fications provide for it. When the road is finished with screenings and it is a question of time for the oil to rise to the screenings, there is invariably a discussion between those of authority and the contractors as to whether the road is actually finished or not. Also as to whether the road has the proper surfacing or not. To eliminate these discussions, if for no other reason, the following method of finishing off a job and surfacing is proposed: first, to oil the surface with the least amount that can be applied with the penetration machine, probably about one-eighth of a gallon to

Amorphous material will keep on splitting indefinitely until its dust is of the most exceeding fineness. The amorphous material is used for filling voids rendering the road compact and making the cement dense and hard, but has little if any wearing qualities. The crystalline rocks have great wearing qualities and stability but change their nature very little if at all, with the exception that when crystalline sand or rock is placed on the surface of the road especially on water macadam roads, they are ground to exceeding fineness by the traffic. With water macadam or



GRAVEL PARTIALLY ROLLED

the square yard; second, to roll this oil directly with very hot hand fire rollers; third, to thoroughly dust with an exceedingly fine amorphous dust from day to day until the oil is thoroughly absorbed and the surface has the appearance of asphalt.

Materials for the construction of oiled roads divide themselves into two great classes so far as oil is concerned: viz: crystalline and amorphous. These terms apply equally to large and small material—sand, dust, and clay. Crystalline material will run only as fine as it is crushed and graded, and no finer.

clay roads these fine constituents are blown away by the wind or rubbed out by automobiles. When lying in place they gradually form a deep dusty road.

When a road is constructed with a binder of heavy asphaltic oil, the oil continually absorbs this dust as formed from either clay or rock growing denser and harder until it has the hardness of bituminous rock. If the oil on the other hand be of the light liquid character that has been used for so many years on road construction, the road will be wavy and soft to traffic, and objectionable in every way. Road oil should be

of the heaviest semi-solid character with eighty or ninety per cent of asphalt District of Columbia Standard, and so solid that it has to be thoroughly heated and melted in order to be used. Such an oil will give the utmost satisfaction and cost no more to apply than the cheaper liquid oils with the exception of the usual charge of five dollars for heating a carload.

The principal reason for the greater cost of sheet asphalt pavement is that the material must be transported to a mixing

the reason that the less distance the oil has to penetrate up and down the more homogeneous will be the pavement. The thickness of the laminations is limited by the size of the coarsest material used, or in the case of sand and screenings, by the fact that reasonable cost does not permit of laminations of less than a half to one inch.

The amount of oil used is limited by the minimum which a first class sprinkler can lay in a uniform sheet. Gravity sprinklers cannot lay less than a half to



GRAVEL PARTIALLY OILED

device, there heated, mixed, and re-transported to the road, and there laid by special. The quality of such pavement is unquestioned but its cost is more than double that of macadam in which the raw materials are laid directly on the road according to specifications. These specifications should approximate the mixing methods as nearly as practice and cost permits.

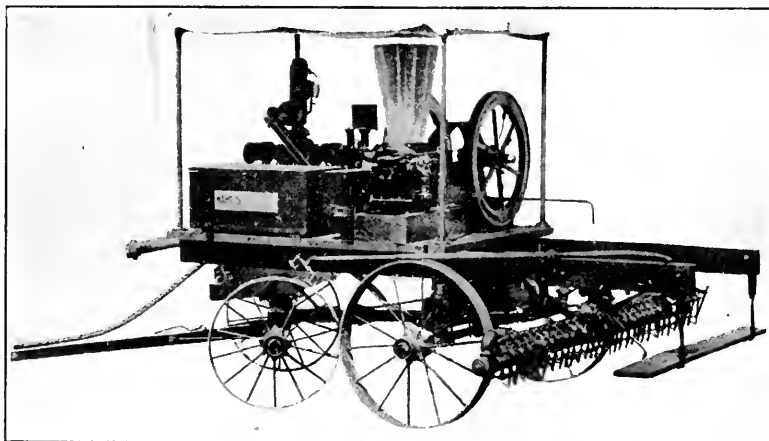
That is to say the rock, oil, sand, and dust should be laid successively in as thin laminations as practice will permit for

one gallon per square yard, necessitating fairly thick laminations, say, two inches or more, resulting in streaked work, dissatisfaction in waiting for the oil to appear on the surface, etc. Power sprinklers can spread as little as one-eighth of a gallon per square yard, permitting of construction and rolling of thin laminations resulting in a solid road uniformly cemented with asphaltic oil, the surface of which when finished in the manner previously indicated resembles sheet asphalt and wears as well.

Oil streets and roads have a very bad reputation in some quarters entirely because of incorrect specifications. That is to say the specifications did not provide for the proper grading of material, nor for the proper kinds of material, nor for the proper oils. Any oil which can be drawn into a sprinkling wagon without heating and sprinkled from that wagon on to the road is a wrong oil for road building and good results will not be obtained excepting with the very lightest traffic. A heavy asphaltic semi-solid oil must be used for all structural work involving the use of crushed

oils being entirely useless so far as results are concerned. The best results are obtained by oiling with a power oiler, then spreading a part of the dust or other available road material and rolling this first lamination. The work should proceed in this manner by laminations until the desired depth of four, five or six inches is reached. In the use of oil the builder should carefully differentiate between road construction and the mere allaying of dust.

If the structural work is undertaken carefully as outlined above firm solid roads without humps or holes will



A TYPE OF POWER SPRINKLER

rock or graded sand.

There are many communities having dirt, clay, or natural gravel roads, that cannot afford to use crushed rock of any kind because it is not available in the district. There are many specifications for the construction of dirt or clay roads involving the use of oil under these circumstances; some involving the use of plows, harrows, etc.; others of patent road machinery; and still others of powerful power sprayers which can jet the oil for considerable distance into the ground. In using any of these a heavy asphaltic oil should be specified, liquid

result, but if oil be merely sprinkled on a dusty road for the purpose of allaying the dust it should not be expected that this action will take the place of structural work and prevent the road from pocketing, rutting and in other ways departing from the level lines of a good road.

The most neglected thing, also the most important, about oiled roads today is their maintenance. Three things are necessary for the proper maintenance of an oiled macadam, viz: a power sprinkler, a dusting machine, and a roller. These three tools will keep an oil maca-

dam in splendid shape, but municipalities and counties who give the most careful attention to their asphalt and to their dirt roads seem to feel that oil macadam should require no attention whatever.

When an oil macadam road begins to show the color of oil during a spell of summer weather it should be dusted daily on parts all showing this color. This will give immediate relief to the

out same after they have fully formed.

One does not expect to find a six inch concrete foundation with three inches of sheet asphalt surfacing, crossing a lonely piece of agricultural country for the simple reason that there is no one to pay for it; nor does one expect to find a cheap oil macadam pavement on Broadway in New York. Each has its field, the boundary lines of which are cost, and they over-lap.



THE COMPLETED ROAD

traffic of the day and gradually the road will assume a consistency and dryness requiring no further attention of this character. In stretches where the road has become a little worn it is only necessary to oil and spread fine crushed rock, oil again, and dust. Continual use of the roller irons out tendencies to deform before they have developed into ruts and pockets, but it is hard to iron

The asphaltic oil macadam road has become a large factor in some communities. It has come to stay; and in mileage covers perhaps more than all other types of road together on the Pacific Coast.

The photographs included in this article show methods of constructing oil macadam and apparatus used for same.

MUNICIPAL FRANCHISES UNDER AMENDMENT TO SECTION 19 OF ARTICLE XI OF THE STATE CONSTITUTION

BY PERCY V. LONG

Paper read before the League of California Municipalities, Wednesday, October 25, 1911.

The main feature of the recent amendment to Section 19 of Article XI of the Constitution is the provision that all persons or corporations seeking to supply a city or its inhabitants with light, water, power, heat, transportation, telephone service, or other means of communication, must obtain a franchise from the municipal authorities. This provision does away with the permission contained in the former section authorizing any person or company to use the streets of the city for such purposes without a franchise. Franchises, to be granted under the amended section, must be controlled by the organic law of the municipality and are to be subject to such conditions and regulations as the municipality may prescribe under its organic law. There is no limitation in the constitution as to the time for which such franchises may be granted or whether such franchises may or may not be exclusive. For such limitations we must look to the organic law of the particular municipality.

The charters of most of the municipalities of the State contain provisions that no franchises for any purpose shall be exclusive and a great many of such charters place a limitation upon the time for which they may be granted ranging from twenty to fifty years, though the tendency of recent legislation has been to limit rather than extend such time.

On account of the provision of the former section doing away with the necessity for the granting of franchises for water or artificial light, most of the char-

ters contain no provision regarding such franchises either as to term or conditions. The San Francisco charter contains the simple provision that "no exclusive franchise or privilege shall be granted for laying pipes, wires or conduits." There is no limitation, however, upon the time for which such franchises may be given. Where the municipal charter is thus silent it is probable that the so-called Broughton Act (Statutes 1905, page 777) will apply as to the manner of granting such franchises and the conditions to be inserted therein.

There has been considerable alarm raised regarding this amendment by persons who fear that the right to grant such franchises will be abused by the municipal authorities. Under the present conditions there is very little reason for such alarm. All the charters which have been adopted or amended within recent years provide for the initiative and referendum upon all ordinances of this nature and a great many of such charters provide for the recall of municipal officers. These provisions certainly protect the people against any abuse of the power thus imposed upon the municipal authorities. The tendency of modern legislation is not to limit the powers of municipal authorities to prevent abuses, but to strengthen the corrective hold upon the officials by the people. It is conceded that good officials are more often hampered by lack of power and that if good officials have broad powers they can be of much greater service to the people, while the

people can be amply protected against bad officials by means of the initiative, referendum and recall. The power of the municipal authorities to do some act for the benefit of the municipality is of course co-extensive with the power of the people to do the same act under the method of the initiative, so that where the power of the municipal authorities is confined by the constitutional enactment, the power of the people is confined to the same extent. Therefore, I believe that the power to grant all of the franchises required by the public service corporations and to prescribe the conditions therein is wisely conferred upon the municipal authorities and that there need be no fear of the abuse of such power under our present laws.

Another effect of this amendment is this, that in all cases where the municipal charter does not provide otherwise and such franchises are granted in accordance with the provisions of the Act of 1905, a percentage must be exacted from the grantee payable out of the gross proceeds to the city. Some of the municipalities have made the same provision by charter. This is a great advantage to all of the municipalities and will be the source of considerable revenue to them.

In the cities where the charter does not provide otherwise it would be well for the legislature to provide by general statute that all such franchises may be granted as indeterminate, that is, the legislature could provide that any city might grant a franchise for any public utility to continue until such time as the city should itself decide to establish a municipal plant and that when such time occurred the city could take over the existing plant at a price to be mutually agreed upon between the company and the city or fixed by a board of arbitrators, such price to be a fair compen-

sation for the value of the property taken, exclusive of any allowance for the franchise itself.

The indeterminate franchise has many advantages over the perpetual franchise and over the short term franchise. The general objections to the perpetual franchise (the words perpetual franchise is here used to designate a franchise granted for a period of fifty years or more) are that it is unwise and unsafe for any city to grant permanent vested rights to use public property when experience has shown that conditions are constantly changing; that perpetual franchises tend ultimately to produce over capitalization, high rates, poor service, interference with the public welfare and lack of progress. The chief objections to the short-term franchises are that under such franchises it is usually impossible for the city to secure the construction of extensions or the adoption of improvements; that as the date approaches when the franchise expires the company is tempted to go into politics being anxious to secure a renewal of its rights; that toward the expiration of the term of the franchise the company allows the plant and fixtures to run down and the service to deteriorate and this is especially true if the franchise provides that at the expiration of the term the property shall revert to the municipality without compensation.

All of these objections are overcome by the indeterminate franchise. Such a franchise is the expression of the theory that a public utility is affected with the public interest in such a vital way that when it ceases to be operated in the public interest the franchise may be terminated and that the representatives of the people may determine, and not the company, when that point has been reached. The service has to be steady and continuous. The only

change is to be in the actual operator. Such a franchise is fair to the city and to the company. The provision that when the property is taken over by the city the company shall be paid a fair valuation therefor removes all temptation from the company to let the physical properties deteriorate and also protects the investor from the uncertainty of his investment which arises under the short-term franchise. The company runs no risk of losing its property without compensation or of having its investment rendered valueless through the termination of the franchise.

The intermediate franchise really puts a premium on good service. The company wishes above all things to keep its franchise and make large profits. The most effective way to accomplish both ends is to please the public and so long as it does so there is very little probability that the franchise will be terminated. The immediate feature of the indeterminate franchise is the promptness with which relief can be secured. As said in a recent article upon this subject, "In the case of the perpetual franchise, there is no time for readjustment except by voluntary action or through the right of eminent domain. Under the limited term franchise, one must wait until the end of the period; but when the indeterminate grant is in force, there need be no delay; immediate action is possible. The city is in control all of the time; it has never abdicated. In the case of transportation lines, it can secure their prompt reorganization if necessary, their coordination in a new way, the joint use of tracks, the establishment of through routes over the lines of different companies, the unification of the entire system and its adaptation to urban needs."

The immediate advantage of the indeterminate franchise over that of the

short-term or perpetual franchise, is the reduction in the charges for the services rendered. If the city pays for the property it takes there is no necessity for the allowance of depreciation charges in the actual rates or for the allowance of a sinking fund to wipe out the capital invested at the end of any given period. This, of course, must be done in the case of limited term franchises where the property is to revert to the city at the end of the period free of charge. It must also be allowed in the case of a perpetual franchise to provide for the renewal of physical properties.

Under the present decisions of the Circuit Court of the Southern District of California in *Madera Water Works vs. City of Madera*, 185 Fed. 281, and of the Supreme Court of this State in *Clarke vs. City of Los Angeles*, 116 Pac. 722, any municipality may establish municipal works in competition with the existing privately owned works and without first purchasing any part of such works. I am informed, however, that the decision in the *Madera* case, above referred to, is not yet final and that a writ of certiorari is now pending before the Supreme Court of the United States in that case.

The foregoing discussion regarding the Broughton Act is based upon the theory that the general statute will apply in all cases where the charter is silent. If, however, the terms of the amendment are to be deemed exclusive, then such franchises can be granted only upon such conditions and under such regulations as are prescribed under the municipal charter. I do not believe that there is any dispute as to the meaning of the words "organic law" as used in the amendment and that such words refer only to the municipal charter. There is, however, no direct limitation upon the inherent power of the legisla-

ture to prescribe the conditions and terms by which the franchises for the use of the streets may be granted. It is conceded that this is a right which always rests with the Legislature, the use of the streets being a state affair unless otherwise prescribed.

I do not believe that the terms of the amendment are exclusive to this extent, but that the meaning of this provision is

simply that where the municipal charters do contain provisions regarding the granting of such franchises, such provisions shall control over all state laws. Or, in other words, the meaning of the amendment may be merely to declare that in this respect the granting of such franchise is a municipal affair, as the words are used in Section 6 of Article XI.



ROADS OF KING COUNTY, STATE OF WASHINGTON

Paper read before Convention of the Good Roads Association at Wenatchee, Washington, October 1911, by J. R. Morrison, County Engineer, King County, Seattle, Wash.

I was requested by the President of the Good Roads' Association to prepare for this meeting a report upon the road work in King County during the past year. As the work undertaken in 1911 was the outgrowth of the experience of the preceding years it will perhaps be profitable to give a short review of the construction of hard surfaced roads in King County.

At the time I first became identified with the county work in 1904 there were no hard surfaced roads in King County an ordinary dumped and spread gravel being the highest type of construction. In 1905 the commissioners instructed the Engineer's office to prepare specifications for a macadam road 10 feet in width, from the southern limits of Seattle to the Meadows Race tract, a distance of one mile, although the Engineer's office protested against the 10 feet width, as being altogether too narrow for the improvement, we were ordered to proceed according to instructions and the road was built under the usual specifications for water bound macadam using 6 inches of $1\frac{1}{2}$ to 3" crushed stone for the foundation course, a second 3" course of stone $\frac{3}{4}$ " to $1\frac{1}{2}$ " in size

with a finishing or binding course of screenings $\frac{3}{4}$ " to dust, each course thoroughly rolled and the screenings flushed in by sprinkling and rolling.

In 1907 this road was rebuilt making it 16 feet wide and was extended one mile south, joining another mile, which was built under the supervision of the U. S. Good Roads' Department, but using the same specifications as had been previously used by the county.

In 1908 $2\frac{3}{4}$ miles of the same class of road was constructed under the State Aid Law and other macadam construction by the county gave a total of 13 miles of macadam road. At the beginning of this work the automobile represented a very small percentage of the traffic and although the cost of these roads averaged \$9,000.00 per mile their superiority over the former gravel construction seemed to justify the increased expense. But with each succeeding year the number of automobiles increased to such an extent that the macadam roads under their destructive action, began to ravel and break up, the bond being entirely destroyed by the removal of the finer particles of stone used as a binder and it was decided to build no

more macadam roads as their short life did not warrant the investment.

In the spring of 1909 an examination of State Aid Road No. 1, and the section built by the county the same year, clearly showed that unless something was done immediately to save them they would not last through the summer season and practically the whole investment would be a loss. An analy-

small steam pump, a length of steam hose and a piece of two inch pipe, flattened for a nozzle, constituted the oiling outfit. The surface of the road was first thoroughly swept by a gang of men using push brooms, the oil heated to a temperature of about 250 degrees F., being applied to the clean surface at the rate of one-half gallon to the square yard, men following with push brooms



WARRENITE PLANT ROADWAY AT LAKE FOREST PARK, KING COUNTY, WASHINGTON. Laid June 1911

sis of the ordinary fuel oil being sold by the Standard Oil Co. showed that it contained 65 per cent of asphalt and it was decided to use the fuel oil as an experiment for a surface treatment. A heating tank of one barrel capacity constructed with steel and fitted with a steam coil was bolted to the rear of a road roller and with the addition of a

to insure thorough coating and even distribution. Stone screenings from $\frac{1}{2}$ inch to dust were then applied in sufficient quantity to take up the excess oil and form a wearing surface. More screenings had to be applied from time to time as the heat of the sun caused bleeding or sweating of the oil to the surface. The average cost of this work

was five cents per square yard. Oil at 5 cents per gallon, screenings \$2 per cubic yard delivered on road, labor \$2.50 per day and coal \$6.50 per ton.

The appearance of the road 2 weeks after oiling was almost equal to that of a sheet asphalt pavement smooth and dustless. The few light summer showers have apparently no injurious effect. I can distinctly recall the pride I felt when showing visiting engineers and road builders over those roads and listened to their words in praise of the excellent results. But, alas, poor Yorrick! After two weeks of our regular fall rains, that beautiful asphalt surface had become an oozy, slimy mud, which gradually worked to the sides of the road and left the traveled portion bare and unprotected. However, the work was well worth its cost, for it had saved the road during the summer season, which is the danger period for macadam roads. And the pleasure and satisfaction enjoyed by the public in the use of that road has been a great factor in the increasing demand for a road which will permanently remain in such condition and their willingness to cheerfully bear the increased cost of such construction.

About this time our board of commissioners concluded that they were not getting enough mileage for the money expended and wanted something better than gravel but less costly than macadam. As very glowing reports were current at that time of the California oil roads, it was decided to try that class of road and see if it would give as satisfactory results in our climate as in California. The use of the most approved machinery was obtained and the latest specifications of the city of Los Angeles for that class of work was followed under the supervision of a man experienced in that particular line of construction. The road selected for this experiment had been

graded and graveled several years before.

It was plowed to a depth of nine inches, harrowed and cultivated, sprinkled and rolled with a tamping roller, followed by the application of three-fourths gallons of oil per square yard, this process continued until two and three fourths gallons of oil per square yard had been incorporated with the old road surface; three inches of new gravel was then spread and tamped, with one-half gallon per square yard of oil, and the road was completed. The oil used was a heavy natural oil from the Adelaide field, containing 85 per cent of asphalt. Actual cost: .43 per square yard, including rent of equipment, cost of assembling, etc. Total \$157 per square yard.

The local conditions were by no means ideal for this class of road, the soil is a porous sand loam and the winter following its construction the road was under water for several days during a flood period. The following spring it was difficult to find a trace of oil on the portion of road treated and it has remained the softest and most difficult part of the whole road to maintain. Some of the same oil used in this experiment was tried as a surface treatment on a macadam road in the hope that an oil heavier in asphalt than the fuel oil might last longer and perhaps stand our winter conditions. The result, however, was the same, a few weeks of rain producing the same oily mud, which soon worked to the sides of the road.

After studying conditions brought about by the Legislature and the change from the State Aid Law to the Permanent Highway Law, we found an unfinished contract under the State Aid Law on the Bothell road for which \$18,000 has been appropriated, and an unfinished contract on the Seattle-Tacoma road with an unexpected balance of ap

proximately \$20,000. The specifications of both of these called for a water bound macadam road. As the experience in King County had proved this construction to be a waste of money, it was decided by the State Highway Commissioner, in consultation with the county authorities and the contractors, to change the specifications to Warrenite and lay as much of this road as could

be laid out, bids were called for the construction of Permanent Highway No. 1, an extension of State Aid Road No. 4-56 toward Redmond, 9702 feet. Permanent Highway No. 2 from Seattle north, 13200 feet on the Bothell Road, toward the portion completed under State Aid. Permanent Highway No. 3 on the Seattle-Tacoma road 15,486 feet extending the piece completed under the State Aid



WARRENITE ROADWAY AT LAKE FOREST PARK, KING COUNTY, WASHINGTON
One and One-half Miles Long. Laid June 1911

be done with the funds available. Under this arrangement approximately 6000 feet on the Bothell Road and 7000 feet on the Seattle-Tacoma road was completed under the State Aid Law. In the Permanent Highway Fund we were informed there was to the credit of King County \$132,000 and as soon as the provisions of the new law could be car-

ried out, bids were called for the construction of Permanent Highway No. 1, an extension of State Aid Road No. 4-56 toward Redmond, 9702 feet. Permanent Highway No. 2 from Seattle north, 13200 feet on the Bothell Road, toward the portion completed under State Aid. Permanent Highway No. 3 on the Seattle-Tacoma road 15,486 feet extending the piece completed under the State Aid

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renite called for a foundation of 6 inches of stone $1\frac{1}{2}$ inches to 3 inches properly rolled, upon which the "Warrenite" surface was laid 2 inches in thickness at center after rolling, and 2 inches at shoulders before rolling. The Warrenite surface is still a bituminous concrete in which the voids in the mineral aggregate are reduced by careful grading of the various sizes. Other conditions being equal, the best road is the one containing the fewest voids and any attempt to improve upon road construction standards must lead toward a reduction of voids, which is the principal feature of the "Warrenite".

The contract prices were as follows:

Permanent Highway No. 1	\$26,560.76 or \$1.54
a sq. yd.	
Permanent Highway No. 2	42,220.00 or 1.80
a sq. yd.	
Permanent Highway No. 3	44,970.00 or 1.53
a sq. yd.	
County Contract, Survey 45 f $\frac{1}{2}$	39,600.00 or 1.75 $\frac{1}{2}$
a sq. yd.	

A total of \$153,350.76 for the four contracts.

The difference in the price per yard is accounted for by the length of haul and cost of material on the different contracts.

Through an unfortunate error it was necessary to readvertise for bids for all of this work and the contracts were not finally entered into until the first week in August. In spite of the late start and the many delays caused by a shortage of material we have at this date completed 65 per cent of the work and if we are granted 3 weeks of fair weather King County will possess as a result of this years' work, 13 and one-half miles of as good county road as can be found in the world, over which as heavy a load can be hauled in mid-winter as in mid-summer, smooth and practically dustless in summer, clean and mudless in

winter, all of which has or will be accomplished this year.

The automobile has been the great destroyer of our roads, but I believe the roads just described if subjected to automobile traffic only would last indefinitely, the horse drawn traffic being more injurious than the motor drawn. I do not know whether you realize how the automobile traffic has increased or what proportion of the traffic of today on our country roads is by automobile. A traffic census carefully taken on one of our county roads during the month of March, which is by no means a month, particularly devoted to pleasure driving, showed an average of 80 per cent of the traffic was motor propelled. If the proportion increases in the next few years as rapidly as in the past, we in King County will be compelled to increase the initial cost of all of our roads in order to secure a class of construction which will carry, without undue maintenance cost, 80 per cent to 95 per cent of the traffic.

Many changes have been made in recent years in the manner of locating and constructing the ordinary dirt roads, the principal object being to secure a location with the best possible grades and alignment and which will serve for the future as well as the present. In the earlier work, roads were constructed from 12 to 16 feet wide, sometimes with deep ditches, the earth from the ditches being used to make the fill for the road. The surface was given a crown of twelve inches at the center. After completion of the grade, the road was placed in charge of the road supervisor and after some months, or years, gravel would be dumped in the center from 6 to 8 inches in depth and 6 to 8 feet in width. This gave a crown of 18 or 20 inches and produced a cross section very dangerous for modern methods of travel.

All of our new roads are now constructed with a width of not less than 24 feet, details of cross section are shown on the sketch. The matter of costs on this class of work are so largely controlled by the local conditions that cost data are apt to be misleading and comparisons dangerous. The cost per mile for clearing, grubbing and grading a 24 foot road bed runs from \$3,000 to \$7,000

work of this class has been well done and the results are very much better than have ever been secured before on work handled by the supervisors. The year 1911 has to a considerable extent been one of the preparation. The Commissioners having purchased several traction engines and hauling outfits, a steam shovel for loading, built bunkers for handling crushed stone and gravel, a



WARRENITE ROAD ON PACIFIC HIGHWAY NEAR KENT, KING COUNTY, WASHINGTON, Constructed August 1911

a fair average being about \$5,000. Under the law allowing the Commissioners to expend sums up to \$2,500 without letting contracts, they have done a considerable amount of road work the past season which has not come under my immediate supervision and I am unable to state whether the work had been done at a less cost than if let by contract. The

supply of dump wagons, road drags and general equipment for doing the necessary road work in the most economical manner. The traction hauling outfits at present consist of the traction engine and six wagons of four yards capacity.

Mr. Hamilton, the Commissioner in charge of the South District, where they are now in operation gives the following figures:

Cost of shovel in pit \$25.00 per day

Cost of Traction outfit \$21.00 per day

Seven trips per day average haul $\frac{3}{4}$ miles. No. of yards moved per day, 168.

On this basis the cost of loading would be 15 cents per yard and cost of hauling $.12\frac{1}{2}$ a total of $27\frac{1}{2}$ cents per cubic yard for a $\frac{3}{4}$ mile haul.

Using local teams with flat bottomed wagons holding one cubic yard and loading by hand, the loading cost was from 20 cents per cubic yard and for

hauling \$1.25, a total cost of \$1.45 per cubic yard.

A further reduction in cost of loading could be made by balancing the present equipment and having enough hauling outfits to keep the steam shovel busy, as at present it is idle more than half of the time.

Our work for the future will largely have to be devoted to widening, straightening and surfacing the existing roads, rather than in building new ones.



CORRUGATED METAL CULVERTS

Address made by Mr. Chris. P. Jensen, City Engineer of Fresno, California, at Convention of League of California Municipalities held at Santa Barbara, California, October 23rd to 28th 1911

A little city, away back in the hills of New England, has a street superintendent who got his position twenty odd years ago because of patriotic service to his country. During the night following the triumph of a presidential candidate of the party which is in a large majority in that neighborhood, this public minded citizen, who had been assisting in a *spirited* and *spirituos* manner in the celebration, got his arm blown off by the Old Civil War cannon which had been doing duty as a noise-maker. Since that time the streets and roads of his town have been made and mended under his supervision.

Mr. Smith (as we will call him, because that is not his name) does not believe "in making roads *out of a book*". He says that river gravel and elbow grease will beat any theories in the world. He builds streets and roads that look just as well as those of any engineer—for two or three years; and then he builds them over again, if he can get the money. There is one street leading up from the center of the town, and having two fairly sharp inclines, where he constructed a handsome crushed

stone highway about four years ago. The road-bed was a thing of beauty, and should have been a joy forever; but Mr. Smith neglected to make any provision for the surface water. In the spring, when the snows are melting, or during the heavy thunder-storms of summer, the water gouges huge holes in the sides, where the gutters should be, rushes across the lower places, and washes tons of fine crushed stone down the cross streets. The lack of proper drainage facilities has ruined the entire work.

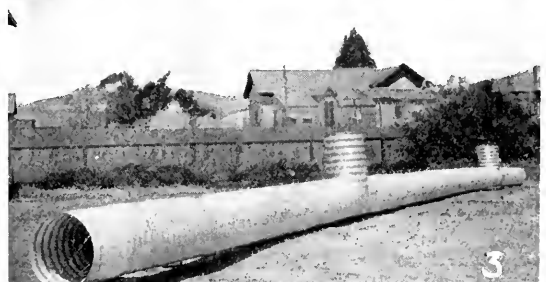
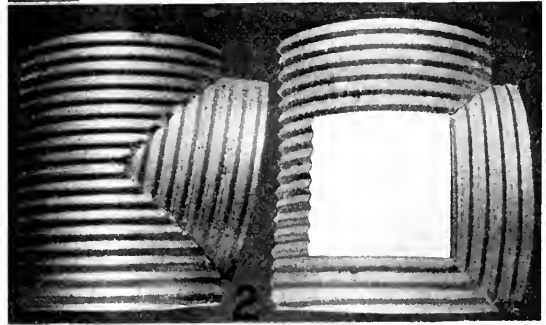
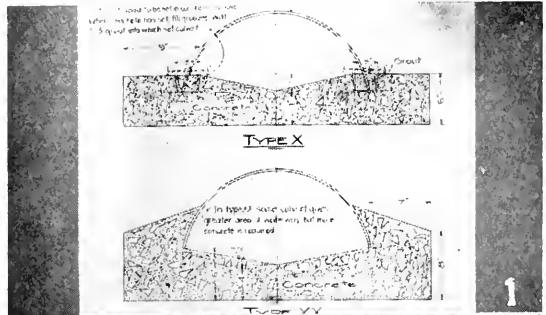
The matter of drains and culverts is of the first importance in the work of the municipal engineer. We are all familiar with the advantages and disadvantages of plank, vitrified tile and concrete. But there is a newer material for this purpose which seems to be proving its worth, and which, so far, has not developed any serious defects. I refer to corrugated iron.

Some fifteen years or more ago it was demonstrated that the simple process of corrugated metal added enormously to its strength; and it immediately became possible to make pipes, which had to

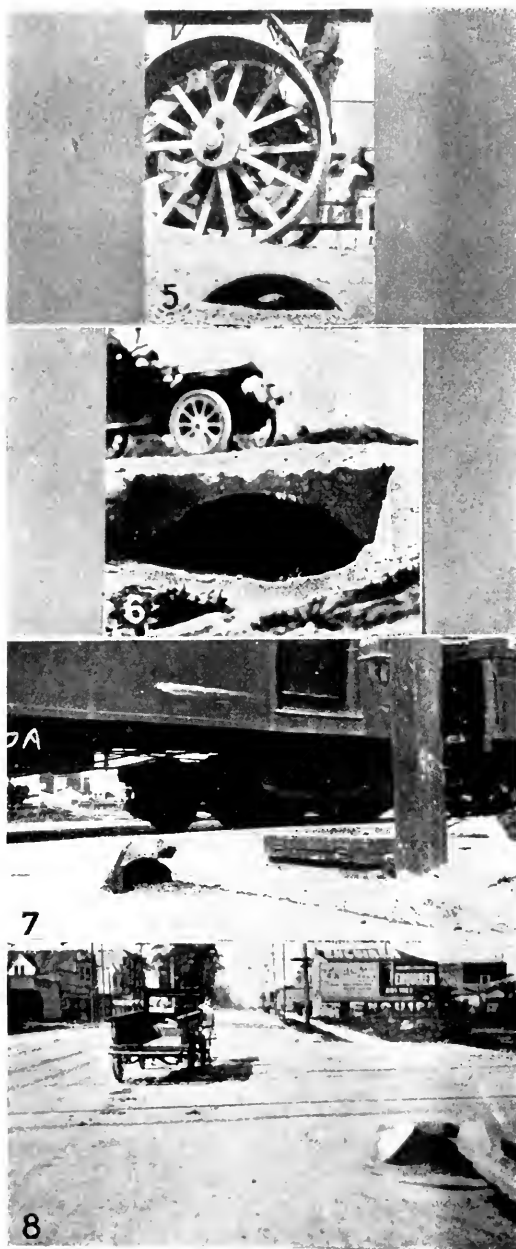
withstand heavy external strains, of much lighter gauges than formerly. The advantages that such pipe possessed in economy, in ease of handling and installing, were at once apparent; and a new industry sprang into existence.

However, a difficulty soon appeared which threatened to put an end to this form of construction. Cast iron resists corrosion rather better than most forms of iron and steel, and the action of rust on thick cast iron pipe would not for years result in serious damage; but on fourteen or sixteen gauge sheet iron or steel it was an entirely different matter; and although the metal was protected as far as possible by galvanizing, in many instances the culverts showed themselves to be anything but a permanent improvement. Some of the earlier makers used charcoal, iron, or other comparatively high class material; but large quantities of steel were marketed and the industry bade fair to go the way of many another good thing which has been ruined by too eager a grasp for immediate profits.

About ten years ago the opinion began to gain ground in the scientific world that iron resists corrosion in proportion to its purity. The idea seemed to be confirmed by the results of a series of careful experiments conducted by the United States Department of Agriculture, which was seeking for the causes of the rapid deterioration of barbed wire, metal roofing and other iron



2—This view shows manner in which openings can be cut in part circle corrugated culverts for man-holes. On the right is shown a branch Y built into main culvert at an angle of less than ninety degrees. 3—This view shows manner in which full circle Tees may be constructed where conditions require. 4—This view shows a corrugated iron part circle culvert of 30" base and 10" rise at center installed in the city of San Bernardino. The roller shows weight of fourteen tons. The gauge of iron used in the construction of this culvert were number fourteen.



products used largely by the farmer. Since that time each year's experiment has served to more fully establish the genuineness of this discovery, and it has come to be quite generally acknowledged that the superior lasting qualities of the bolts and nails, chains and other iron work of every description of fifty years ago over that of more recent years were due to the greater purity of the iron and steel made before the adoption of the Bessemer process.

During the recent years it has become possible to secure iron of a very high degree of purity. Theory and practice seem to agree that culverts made of this material will have a very long life—much longer, in fact, than the average cement construction. Large quantities are being installed throughout the country; and where average care and intelligence are used, they seem perfectly successful.

The purity of the metal used, being essential to the success of this form of construction, it is of the greatest importance that specifications are such as to insure the use of the very best metal obtainable.

Until recently the sulphuric acid solution test has been adopted by engineers and chemists as the most satisfactory method of determining the relative anti-corrosion qualities of any two metals. This consists of immersing the test samples, from which all galvanizing has first been

5—This part circle corrugated iron culvert is located in the city of Emeryville and is installed beneath the tracks of the San Francisco, Oakland & San Jose Railway Company. The dimensions of this culvert are base 30", rise 7" at center, gauge number fourteen.

6—A 36"x9" culvert built of No. 14 gauge corrugated iron installed by the city of Berkeley at the corner of Tenth Street and Bancroft Way. When the culvert was installed it only was covered partially, one quarter of its length being left entirely bare for several weeks to see how it would stand the traffic in such condition. The test proved satisfactory and after its completion, the culvert was covered to depth shown here.

7—A part circle corrugated iron culvert in Oakland at Fortieth Street and San Pablo Avenue

removed, in a 25 per cent solution of sulphuric acid at a temperature of 150 degrees Fahrenheit for three hours,—the comparative loss in weight in this time determining the difference in quality.

The American Society for Testing Materials at their meeting during convention held at Atlantic City in June, however, go strongly on record as *not* recommending this test. In a comparison of a very pure iron and steel the Sulphuric Acid Solution test undoubtedly points in the right direction, but in testing a pure iron with an iron while not quite so pure yet approaching purity much more closely than steel, the results of the test are nearly, if not entirely, worthless as a basis of figuring what the metals will do in actual service.

On account of the use of the Sulphuric Acid Solution Test so extensively many manufacturers failing to produce a pure iron have experimented to find other ways of meeting the requirements of the test. Experiments have shown that the addition of copper to steel will dope it so that it will pass the test that has been prescribed in the past. The addition of copper to steel or iron in no way increases the resistance to corrosion, in fact quite the contrary is the case as copper differs electro-chemically from iron and when subject to corrosive influences an electrolithic action would start between the ions of copper and the

under the tracks of the Santa Fe Railway. This culvert is one having a base of 22" with an 8" rise and was made from 14 gauge material. Heavy trains have crossed this culvert daily for the past two years without detrimental effect.

8—Another view of the same culvert showing five tracks of the Santa Fe system passing over it. On account of the lack of headroom it was necessary to lay this culvert so that the rails rest directly upon it.

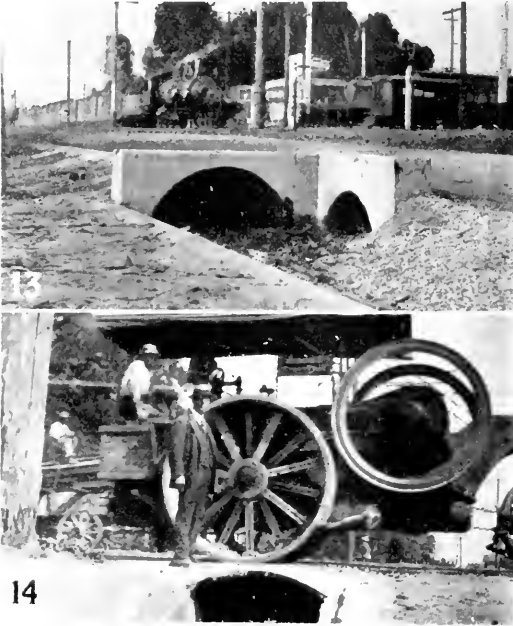
9—This culvert has a base of 58" with a rise of 19" and was made from 14 gauge corrugated iron. This view shows culvert as installed in the city of Ontario, at the intersection of West G Street and Euclid Avenue.



ions of iron, one of which is positive and the other negative, and the steel or iron doped in this way in actual service would not last as long as the same iron or steel without the addition of the copper. There are several other ways that have been discovered by which the acid test can be evaded, among these are the dipping of test samples in arsenic or in a solution of potassium bichromate.

This trickery and intentional evasion of the real meaning of the Acid Test has brought up a situation that is rather difficult to meet. At the present time there seems to be but one alternative and this is that the total content of the five principal impurities in the metal (phosphorus, sulphur, carbon, silicon and manganese) shall not exceed .06 percent (six hundredths per cent of one per cent), this being the highest standard of purity as yet obtained by the manufacturers of a genuinely pure iron.

At this point Mr. Jensen showed and explained 14 stereopticon slides of Corrugated Metal Culvert Construction as used in city work in California and continued as follows:



At this point I wish to say a word in regard to gauges of part circle culverts. It can be shown beyond a doubt that a part circle culvert of a certain gauge is equally as strong as a full circle of which it forms an arc, *if the edges are so reinforced as to absolutely prevent spreading*. But in a great majority of cases the part circle is used where there is so little road room that it can have not more than half the proper depth of covering. This being the case, we should certainly go to the heavier gauges to provide additional strength. The strength increases with the thickness, not in arithmetical but in geometrical ratio; and this makes the difference between fourteen gauge and twelve gauge very great indeed. I believe that

10—A 24"x10" part circle corrugated culvert in use in the city of San Bernardino.

11—This part circle culvert was made from 16 gauge corrugated iron and has a base of 14" with a rise of 7". Installed in the city of Riverside at the intersection of 6th and Lime Streets. The culvert is 68 feet long with two Tees each 17 feet in length.

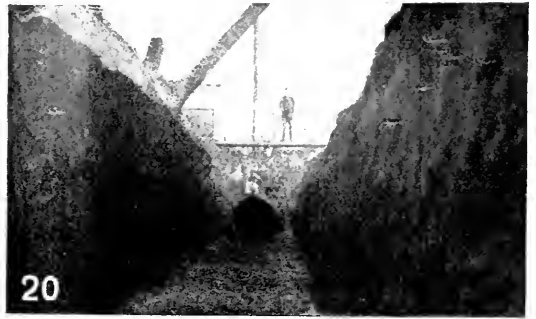
12—A 46"x12" part circle corrugated culvert being installed by the city of Ontario. The gauge of the metal used in this case was fourteen.

13—This view shows two half circle corrugated iron culverts at the intersection of Slosson and Central Avenues, Los Angeles. The culvert on the left is 36"x18" and is made from 14 gauge iron, while the one on the right, carrying extremely heavy traffic, is 24"x12" and is made of twelve gauge material.

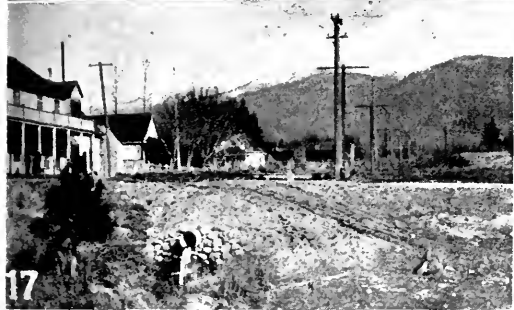
14—This shows a very flat arch covering made from corrugated iron. The base of this is 26" with a rise of 4". The drain shown here is located in the city of Alhambra and was originally constructed with concrete sides and plank top. The corrugated iron arch was fitted into grooves left when planks were removed. The condition here shown is extreme, there being but a 4" covering over the arch. Owing to this fact, 12 gauge iron was used in its construction. The roller weighs twelve tons.



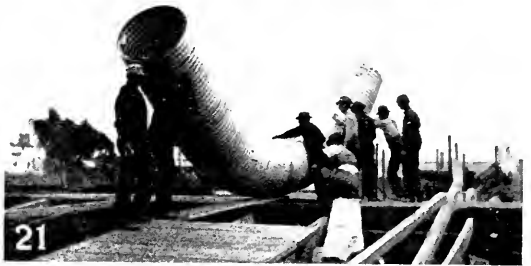
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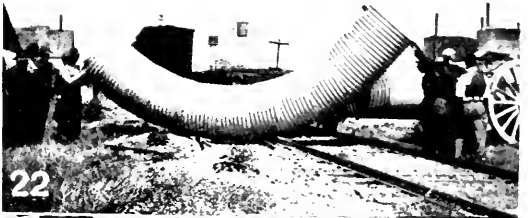
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21



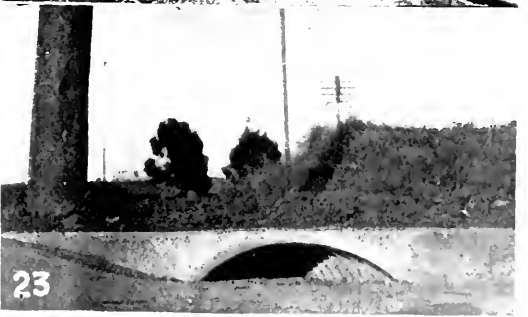
18



22



19



23

16—(no No. 15)—The part circle corrugated iron culvert is installed in the city of Riverside. In the background is shown the famous hotel at that place—the Glenwood Mission Inn—a familiar sight to all Southern California travelers.

17—An 18" corrugated iron culvert installed in the town of Sisson, Siskiyou County, California. This view shows the high snow-capped peak of Mount Shasta in background.

18—A 30x9 part circle corrugated culvert in the City of Venice.

19—A full circle 10" corrugated culvert in the City of Susanville, in Lassen County. Susan-

ten gauge corrugated iron; at circles might be used with economy and with perfect success in many instances where railroad iron and reinforced concrete are now employed.

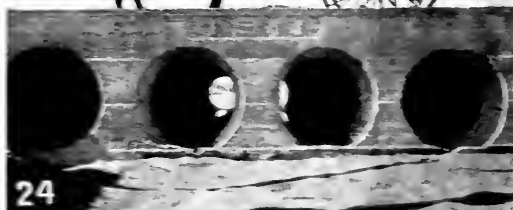
Again Mr. Jensen called the lantern into use showing stereopticon slides illustrating how successfully Corrugated Metal Culverts had been used and closed the address as follows:

Corrugated culverts are beautifully adapted to certain situations, and ill adapted to others. In general, I would say that, used with intelligence and with ordinary care in installation, they are of valuable assistance in the work of the municipal engineer.

ville is fortunate in having plenty of headroom, which is not the case with streets in most of our cities.

20—View showing installation of a 36" full circle corrugated culvert at Bakersfield. This pipe syphons water of an irrigation ditch underground for a distance of 420 feet. In it are two bends which I will show presently, built to turn corners on a radius of ten feet, illustrating what may be done with this form of construction.

21-22—Two views of bends in Bakersfield inverted syphon.



23—This shows a part circle corrugated iron culvert with 24" base and 7" rise used to carry water from gutter to side street across street corner beneath sidewalk.

Note the angle at which ends have been cut. This culvert is installed in the City of Long Beach.

24—This view shows one of many corrugated iron culverts 8" in diameter used by the City of Long Beach to carry water from gutter to side street by passing culvert beneath sidewalks at street intersections.

Note that the end of culvert is cut to an angle of 45 degrees to line up with facing of curb-line.

25—These 24" corrugated iron culverts were installed by the engineering firm of Densery & West for the Patterson Ranch Co. near the City of Oxnard.

This view illustrates not only the possibility of handling a large volume of water by the use of several culverts placed side by side, but also how increased efficiency may be gained by beveling entrance of each culvert in concrete end wall. Instances occasionally arise in city work where this method of construction can be utilized to advantage.

26—This view shows one of the many part circle corrugated iron culverts installed beneath the streets of the City of Fresno.

DEPARTMENT OF EFFICIENCY PLANNED FOR PASADENA

MAYOR THUM OUTLINES HIS IDEAS IN REGARD TO SUCH SCHEME

New York City Has Such Department Created by Citizens

Pasadena may possibly try the experiment of a bureau of efficiency such as the citizens of New York city have adopted after a prolonged test. There the citizens raised a fund of \$100,000, which was used in the employment of a corps of experts who went over the details of municipal management and reported many changes to increase the efficiency of civic work.

The bureau idea is exactly the same as that adopted in many of the great business and manufacturing establishments. In it is centered the work of the various departments. By it books are kept and purchases made, and through it suggestions to the executive heads of the various municipal branches are made.

Mayor Thum had been studying the workings of such a department long before he became a candidate for office and he has advanced views in the matter.

HOW THE MAYOR VIEWS PLAN

"Every city needs an efficiency department of the best possible type," says the mayor today. "Some of the principal purposes of such a department are:

"First, to keep book accounts which reflect in detail every phase of municipal work.

"Second, to measure up each such detail with established standards.

"Third, to keep accounts with every activity of the city, not only in ultimate detail, but also in a form which will make them comprehensible to all such

laymen who by natural inclination take an interest in such matters.

"Fourth, to gradually centralize all detail accounting in the office of the department.

"Fifth, to purchase and distribute all materials.

"Sixth, to publish complete self-explanatory financial and statistical reports in a form satisfactory to the layman who may desire to make a thorough study of any civic activity.

"Seventh, to make a systematic effort to induce organizations of laborers, of capitalists and of civic students to critically study the detailed reports.

"Eighth, to make special efforts to induce high school and colleges to take up the study of these reports, in order that our young men who desire to prepare themselves, no less for public work than for private, may have an unexcelled opportunity for so doing.

CONNECTED WITH ALL DEPARTMENTS

"Each city department will be directly connected with its own branch in the efficiency department, and in this way all division of the city government will be linked together through this department.

"Efficiency departments, designed as they are to increase efficiency in all city activities, and designed as they should be to disseminate detailed and absolutely accurate knowledge to the layman, are destined to become the greatest factors in preparing the public for further and ever-better public ownership of the lar-

ger utilities. It is generally understood that the public which is on a safe road to more extensive ownership is on a direct road to unqualified prosperity and happiness for the average man—the real citizen.

"After a fairly inexpensive way is once worked out to publish such a detailed municipal report, and after one organization composed of average citizens has given itself to a serious study of the report, no force will stop the progress of the movement. Then the existence of large private interests will become less and less necessary and public regulation will become ever better. Then, too, the well known benefits of public ownership will accrue more rapidly."



BLESSINGS OF COMPETITION

Los Angeles has been trying to induce her two telephone companies to exchange service, so that a subscriber to either one of them will get a whole telephone instead of only half a one. At present, whoever wishes a complete telephone—one, that is, by which he can reach all other telephone subscribers—must rent an instrument from both companies, and not only pay two rentals, but be driven distracted by running to the wrong telephone, or discovering that the number he is clamoring for in a hurry belongs to the other system.

The money loss to the city through maintaining two systems which in part merely duplicate each other, and which together furnish a much less satisfactory service than might be had from a single, comprehensive system, has been estimated at a large sum.

The city thought the first telephone company charged too much. The only

remedy it knew was the ancient panacea of competition—to get up a second company that would fight the first one, with duplication of plants and much waste generally.

We should not feel called upon to mention Los Angeles' case unless its moral were pretty widely applicable. We read, with pain, that some good senators are suspicious of the Administration railroad bill, because they think it may lessen competition among the roads. Of course, the improvement of railroad service in this country has been exactly coincident with the decline of competition. We have got better service and lower rates just about in proportion as the roads have stopped fighting and submitted to public regulation. In that way only will still better service and lower rates be had.—*Editorial, Saturday Evening Post, April 2, 1910.*



City-Beautifying Law: Under the new law in New Jersey, cities may establish commissions to work out a plan for civic beauty. Newark has started its commission at work and has provided an appropriation of \$10,000. The commissioners draw no salary.



TRADE NOTES

Mr. F. C. Roberts of the firm of Fredk. C. Roberts & Co., has discontinued construction work and has resumed practice as consulting engineer under the firm name of Roberts & Denike. Both Messrs. Roberts and Denike have had extensive experience as consulting and constructive engineers, having specialized in municipal water lighting and sanitary plants, and are prepared to submit the most modern designs for controlling such utilities and undertake the preparation of specifications, plans and estimates in connection with such work.

EDITORIAL

HOME RULE IN TAXATION

Among the most important resolutions adopted at the Santa Barbara meeting was the one favoring home rule in taxation. Upon returning to San Francisco, Secretary Mason succeeded in getting several other organizations of influence interested in this proposition, and there is a possibility that the matter may be taken up by the initiative unless the Governor and solons at Sacramento can be induced to take action at the special session; this may be done by convening another special session immediately upon adjournment.

Our present system of municipal taxation is far from satisfactory, and an opportunity should be given to try out some of the theories advanced by those who have made a special study of this question. Under our present laws the taxation of many forms of personal property is a farce.

An agitation for tax reform has been spreading through Canada, as a result of the marvelous progress Vancouver has been making recently, which progress the wise ones claim is due entirely to the new system of taxation adopted there.

There is a growing belief throughout our state that the many large tracts of land which are being held purely for speculative purposes should stand more of the burden of taxation. Much of this idle land would be divided up and utilized for farming purposes, were it not for the fact that the taxes are such a trifle it is found more profitable to hold it while the value increases daily as a result of the industry of adjacent neighbors; in other words, it is esteemed better policy now to wait and reap the unearned increment as a harvest.

Then again, there are others who think that manufacturers and other large employers of labor should occasionally be favored with a lower tax rate than other forms of business in order that enterprises of this character, which are esteemed by many to be of particular benefit to society, may be encouraged and promoted.

In order to find out how much merit there is in these new ideas it will be necessary to try them out, and the cities and towns of the state should be given the opportunity.

OIL MACADAM AN INFRINGEMENT

The town of San Leandro has been notified that the oil macadam streets recently constructed there involve an infringement of the patent controlled by the California Dustless Roads Company, and a demand has been made for royalty.

This is the same company which brought suit in 1905 against several towns of Southern California. The case was tried before Judge Welborn who decided against the company on every point.

If, however, as it appears, they were not satisfied and want another trial, of the matter, they will find a formidable opponent in the League of California Municipalities.

The delay with this number of Pacific Municipalities is due to the removal of our publisher to San Jose where they have secured larger quarters and installed more modern equipment, thus being enabled to issue all future numbers promptly on time.



Q When a man feels the necessity of being in two places at the same time he goes to the nearest telephone and sends his voice. It is not exactly the same thing but when a man talks hundreds of miles in opposite directions from the same Bell Telephone, it is about as good. In the daily use of the telephone a man travels all over town by wire in a few minutes. It is just as easy to travel all over the state and other states by means of the universal Long Distance Service of the Bell System.



The Pacific Telephone & Tel. Co.

Every Bell Telephone is the Center of the System



QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry.

Q. Gentlemen: Please inform me if it is legal to pay the Recorder \$3 for each case, where there is no ordinance.

If you have copies of any ordinances setting the compensation of the Recorder, please send us one.

Ans. Dear Sir: Replying to your inquiry of November 10 we would answer as follows:

The compensation of a Recorder in cities of the sixth class is controlled by Section 883 of the Municipal Corporation Bill which says in part—"He shall be entitled to charge and receive for his services such fees as are or may be al-

lowed by law for justices of the peace for like services, except that for his services in criminal prosecutions for violation of ordinances he shall be entitled to receive only such fees as the board of trustees shall by ordinance prescribe."

From the foregoing you will readily see that the Recorder may now charge the same fees for civil cases as are charged by justices of the peace in your county; we believe that \$3 is the fee generally established throughout the various counties.

In criminal^o prosecutions for violations

of your town ordinances he shall receive only such fees as the trustees may have prescribed by ordinance, and he is not entitled to receive any until such an ordinance is passed. We enclose an old ordinance of Yreka which provides a salary for the recorder; this is not now permissible, however, and any ordinance you may adopt should provide for his compensation by fees for each case.

Q. Will you kindly inform me by return mail, if possible, what is meant by the following in the report to Sacramento.

(Value of Corporation property in accordance with Art. 13, Sec. 14 Constitution and Chapter 335 Statutes 1911)

I have my report all complete with this exception and would thank you kindly if you would outline this part briefly.

Ans. We hereby reply to your inquiry of November 11th as follows:

Article 13, Sec. 14 of the Constitu-

tion was amended last year so as to provide a new system of taxation for State purposes. It provides that the cost of running the State government shall be borne exclusively by the public service and other quasi-public corporations. These corporations are exempt, however, from payment of any other taxes or licenses, state, county or municipal; excepting, that railroad companies, insurance companies and franchises are still liable to municipal taxation for the principal and interest of any bonded debt which may have been incurred prior to the adoption of the State Constitutional Amendment on Nov. 8th, 1910. Therefore, you are required to fill out this portion of the report by showing the value of corporation property which, under the State new Constitutional Amendment is liable for your bonded debt, if you have any. You

Wainwright Galvanized Steel Corner Bar

For Protecting Edges of Concrete Curbs, Steps, Columns, Etc.

This bar is Self Anchoring, the Dovetailed Web holding it firmly in place Every Inch of its Length, requiring no hooks, clips, bolts or wires at intervals allowing buckling or expansion, resulting in loosening of other devices.

IT HAS A RECORD OF TEN YEARS' USE WITHOUT FAILURE

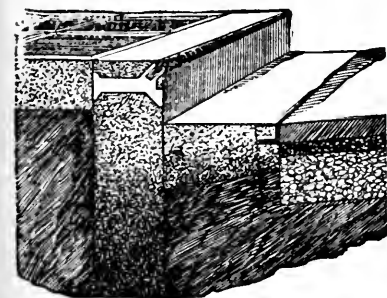
This bar is the main feature of the

WAINWRIGHT STEEL-BOUND CONCRETE CURB

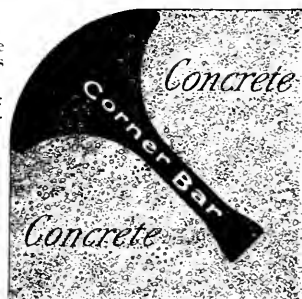
WAINWRIGHT PATENTS—March 9, 1897. November 22, 1898. May 5, 1903. March 26, 1907. August 29, 1907. August 2, 1910.

**THE BEST IN THE WORLD
OVER FOUR MILLION FEET**

In use in more than three hundred cities in the United States



STEEL PROTECTED CONCRETE CO.



**Absolutely Non-Breakable
Cheaper Than Granite**

GALVANIZED STEEL CORNER BAR Prevents Chipping or Breaking on Edges.

This Curb is Mechanically Perfect and Unequaled for Curved Corners.

THIS CURB WILL STAND HARDER USE AND LAST TEN TIMES AS LONG AS PLAIN CONCRETE CURBING.

Contractors can make money by laying this curb.

City Engineers can save money by specifying it.

Architects are invited to read pages 242 and 243 "Sweet's Index."

Metal Parts for Sale. Send for Copyrighted Booklet No. 19.
Pacific Coast Representatives:

Seattle, P. W. Smith, 1900 Fourth Ave., North
San Francisco, R. C. Oliphant, Williams Building
Los Angeles, Tood-Chase Co., Security Building

**REAL ESTATE TRUST BUILDING
PHILADELPHIA, PA.**

probably made such a report to the State Controller last August or thereabouts.

Q. The question on which I wanted information is this: If, in the construction of a public work in a city of sixth class; a machine of the cost of more than \$100.00 should be purchased and installed without advertising for or receiving bids for the same and the claim allowed and ordered paid by the Board of Trustees, the clerk would in any way be liable for signing the warrant for the claim, he having full knowledge of the whole transaction?

In other words, what is the clerk's responsibility in such city in signing warrants for claims?

Ans. In regard to your inquiry recently made at Santa Barbara and again in your letter of Nov. 7th, will reply as follows, Section 864 of the Municipal Corporations Bill says:

"All demands against such city or town shall be presented to and audited by the board of trustees in accordance with such regulation as they may by ordinance prescribe; and upon the allowance of any such demand, the president of the board shall draw a warrant upon the treasurer for the same, *which warrant shall be countersigned by the clerk*, and shall specify for what purpose the same is drawn, and out of what fund it is to be paid."

According to the language contained in the Section above quoted, the duty imposed on the clerk is mandatory and directory and *not of a discretionary nature*, the duty of exercising discretion being imposed on the Board of Trustees when auditing and allowing the demand; the responsibility, if any, also being theirs. Therefore your duty in afterwards countersigning the warrant is merely a ministerial one and intended for the sole purpose of showing that the warrant went through the regular and customary course or procedure. Therefore, we are inclined to believe that you incurred no financial or other responsibility in signing the warrant for claims

which you may happen to know were not incurred in strict accordance with the law. The law does not direct you to hold up such demands as the treasurer is directed to do in certain cases specified in Section 886. As far as we have been able to learn the question has never been raised in this State, and we believe you will be safe in following the express mandate of the law.

Q. Before passing an ordinance regulating the price and quality of gas, is it necessary that the gas company be given an opportunity to be heard, or is it sufficient if the company is given an opportunity to complain within a certain time after the Board has fixed the rate for the year. Any information concerning the necessary preliminary steps will be appreciated. I have the ordinance of Whittier covering this matter and would like to get copies of other ordinances suitable for small cities on the subject. Thanking you in advance, I am

Ans. Replying to your inquiry of Nov. 9th, would advise that you give the Gas Company an opportunity to be heard before passing the ordinance regulating the rates and quality of gas. Enclosed we are sending you a copy of an ordinance recently adopted by Ontario for fixing the rate of electricity, and also from Los Angeles and one from Berkeley.

Q. Will you please advise me, as soon as possible, whether you consider an ordinance constitutional in principle, which aims to place a license tax on certain kinds of business such as peddling, circuses and persons who maintain automobiles for hire on the street, without having a fixed place of business. It is desired to do this without placing a general license tax upon all merchants, and to do it as a protective measure.

Ans. Your inquiry of Nov. 1st, duly received and we herewith reply thereto as follows:

There is no doubt as to your constitutional right, also the right under your new charter, to impose a license tax "on business such as peddling, circuses, or the business of maintaining and renting

out automobiles for hire, etc." Whether they maintain a fixed place of business or not is immaterial.

You may impose licenses such as above referred to without placing a general license tax upon all merchants; and with regard to the business of renting out automobiles for hire, we believe you may discriminate between those who maintain a fixed place of business and those who do not, and impose a different license tax on each.

In principle, license tax may be imposed for the purpose of revenue or regulation, or both; but they cannot be imposed as "the protective measure", as then they are regarded as being in restraint of trade and in violation of the federal constitution.

Q. A scheme is progress here by a corporation to get a railroad franchise across two streets for five separate tracks in the middle of block and for a term of 25 years. As these different tracks would be exclusively for private corporate gain and benefit, and the city would receive no substantial compensation if any at all for the franchise I consider an act of that

kind and for the term of 25 years a great damage to the city as considerable heavy hauling is being done now and likely more will be done in the future on the streets with proposed five railroad tracks across besides the railroad tracks now laid across the streets in said blocks.

I ask your advice for any preventative measure you may be willing to suggest (on the subject named) for a legal right of permit and franchise, etc.

Ans. In reply to your inquiry of November 18th, would advise that you grant no franchise whatever for the construction of the five railroad tracks mentioned. Instead, would suggest that you follow the policy of the legislative body of San Francisco by granting a permit revocable at the will of the legislative body. This is the method followed by the legislative body of San Francisco for some time past, in cases where spur tracks are desired by industrial corporations, and it appears to give general satisfaction.

Enclosed we send you copies of San Francisco ordinances covering the matter, also a printed copy of an ordinance granting such permit.



STREET SIGNS

The only indestructible street name plates are those coated with vitreous enamel and fused on to chemically clean plates in furnaces at a white heat by our latest improved process.

We guarantee our signs not to change color, fade, tarnish or scale with any ordinary usage, and to stand exposure to all climatic changes. Catalogue mailed on request.

CALIFORNIA METAL ENAMELING CO.

Bairdstown Los Angeles

California

What the Cities are Doing

Los Banos wants a public library building.

Willits is installing some corrugated iron culverts.

Modesto is planning a lot of street and sidewalk improvements.

Petaluma is contemplating the purchase of a combination auto chemical engine.

Pasadena may purchase a power tamping machine such as is used in Riverside.

Turlock has voted \$25,000 bonds to complete the water and sewer systems of that city.

Exeter is about to start construction of its new water-works system.

San Jose has commenced proceedings for paving ten different streets with asphaltum.

Selma has commenced proceedings for paving its main streets with asphalt concrete.

Santa Ana received bids on Nov. 20 for 4600 feet of 6 inch vitrified sewer pipe and 200 "Y" branches.

Santa Maria voted \$75,000 bonds for a sewer system on November 14.

South Pasadena has commenced proceedings for the construction of a concrete asphalt pavement over its main thoroughfares.

Alhambra and **Pasadena** are discussing the plan of making a joint arrangement for disposing of their garbage and sewage.

Riverside is about to construct a reinforced concrete swimming pool 50x120 feet, in Fairmount Park.

Orland is considering the purchase of a forty gallon chemical engine and a hook and ladder outfit.

Alameda is installing an elaborate system of ornamental iron electroliers as a substitute for the old fashioned method of street lighting.

Los Gatos citizens have started a campaign for improved streets, the acquisition of public parks, and other improvements.

San Mateo—The grammar school board have decided to again submit the proposition of voting \$100,000 bonds.

Jackson is putting in a 20x60 reinforced concrete bridge at the junction of Main and Sutter Streets. A contract has just been let for the purchase of 500 feet of 2½ inch fire hose.

Pasadena will receive bids on Dec. 5 for one motor-propelled auto fire engine and hose wagon and one motor-propelled chemical engine and hose wagon.

Williams, Colusa Co. is contemplating incorporation. Sewers are wanted and the formation of a municipal corporation or of a sanitary district is inevitable.

Chico citizens are well pleased with their newly-paved streets and are clamoring for more. The city will advertise for paving twelve more blocks.

Santa Ana will have an election on Dec. 14 on a bond issue of \$200,000 for a polytechnic school and \$25,000 for a grammar school building. It is expected that the women of that city will exercise the franchise privilege recently granted them.

Oroville has commenced proceedings for paving its business streets. It is proposed that all companies using electric wires be compelled to utilize one set of poles.

Porterville will purchase some street cleaning apparatus. A vacuum cleaner has been recommended.

Orange has voted \$55,000 bonds for its fire department and for improving its water system.

Corona voted a large bond issue on Nov. 1, for the following purposes: \$98,500 for permanent streets and roads; \$25,000 for a city hall; \$13,500 for a site for a city park; \$6,500 for street extension; \$6,000 for an auto chemical engine.

Roseville is one of the first towns to use the referendum. The action of the trustees in purchasing some church property for a city hall site was endorsed by a vote of 213 to 142.

Sacramento has adopted a new charter which establishes the commission form of government.

Auburn has awarded contracts for the construction of additional sanitary sewers.

Colusa has awarded a contract for the installation of a complete fire alarm system.

Mountain View. H. A. Mason, expert bond attorney for the Board of Supervisors of San Francisco and the well-known authority on municipal corporation law, lectured here on Nov. 10 on municipal government, under the auspices of the Society for Civil Service.

Ukiah. A petition is out to recall the Mayor and three members of the Board of Trustees, on the ground that they voted to pave a street.

East San Jose was consolidated with the City of San Jose on November 2nd.

Calistoga is having several thousand feet of sidewalks put down. An electric road is expected to be running through the town within a year. The Snow Mountain Power & Light Co. now have their current in here and gives the town uninterrupted 24 hour service. The coming year is expected to be a record breaker.

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

WRITE FOR CATALOGS

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S. F.

Asphalt Machinery

A. L. Young M'chy Co., 26-28 Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Arch. Terra Cotta

Gladding, McBean & Co., Crocker Bldg., S. F.
Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Automobile Public Service Wagons

The Thomas B. Jeffery Co., 117-125 Valencia St., S. F.
Reliance Auto. Co., 342 Van Ness Ave., S. F.
American La France Fire Eng. Co., 660 Mission St., S. F.
American Motors Co., 567 Golden Gate Ave.
Consolidated Motor Car Co., Van Ness Ave.
Gorham Eng. & Fire App. Co., 48 Fremont S. F.
Webb Motor Fire Apparatus Co., 550 Montgomery St., S. F.

Bells

W. T. Garratt & Co., 277-279 Fremont St., S. F.

Bitulithic Pavement

Warren Brothers Company, Los Angeles, Cal.

Blue Prints

So. Cal. Blue Print & Supply Co., 800 American Bank Bldg., Los Angeles.

Bridge Builders

E. T. Thurston, Jr., Wells Fargo Bldg., S. F.

Concrete Construction

Esterly Con. Co., Inc., 717 Market St., S. F.

Concrete Mixers

California Hydraulic Eng. & Supply Co., S. F. and Los Angeles
Barber Asphalt Paving Co., S. F. & L. A.

Constructing Engineers

Fredk. C. Roberts & Co., 221 Sheldon Bldg., S. F.
Cal. Hydraulic Engineering & Supply Co., San Francisco and Los Angeles

Geo. E. Dow Pumping Engine Co., S. F. & L. A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.
E. T. Thurston, Jr., Wells Fargo Bldg., S. F.
American Engineering Corporation, 57 Post St., S. F.
Stephen E. Kieffer, 1st Natl. Bank, Oakland

Culverts

Cal. Corrugated Culvert Co., Los Angeles and W. Berkeley
Standard Corrugated Pipe Co., S. F.

Dump Carts and Wagons

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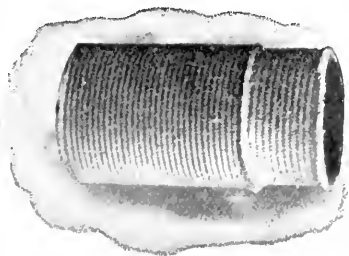
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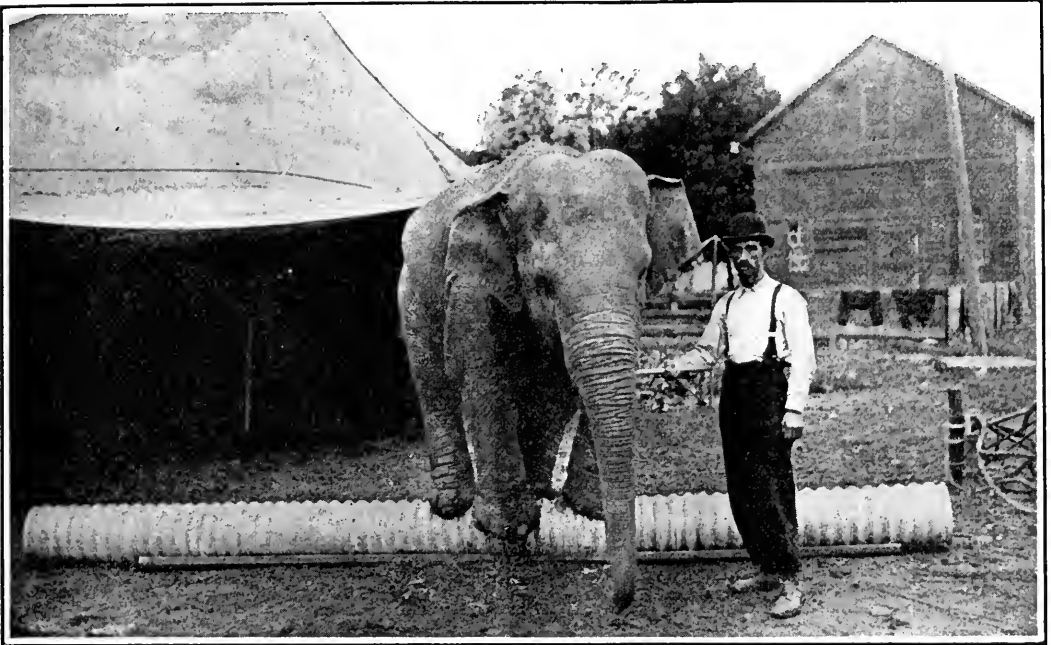
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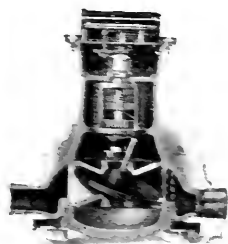
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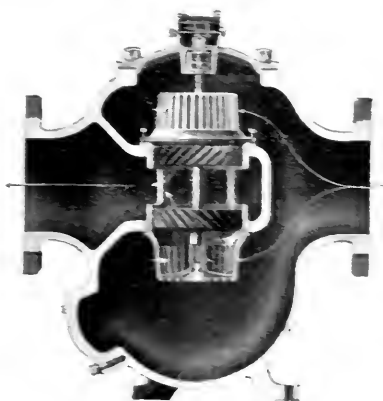
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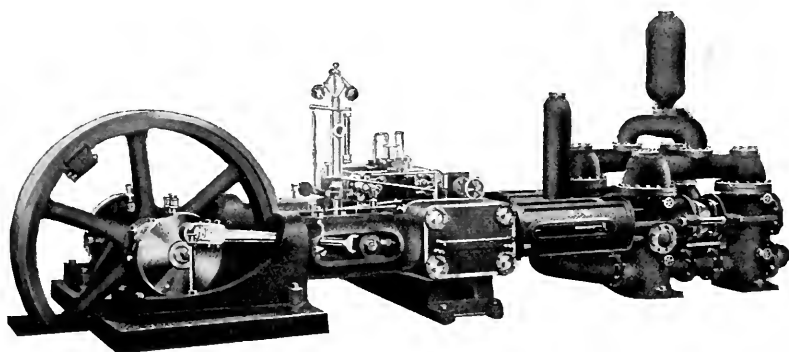
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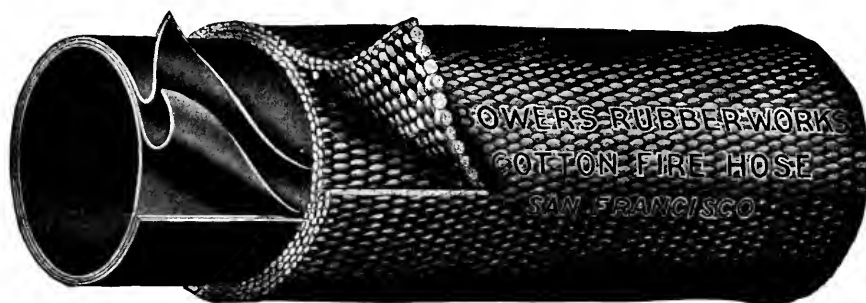
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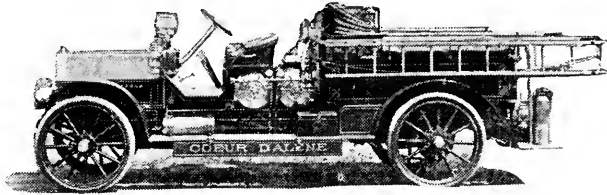
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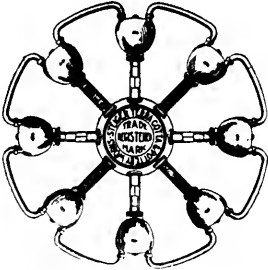
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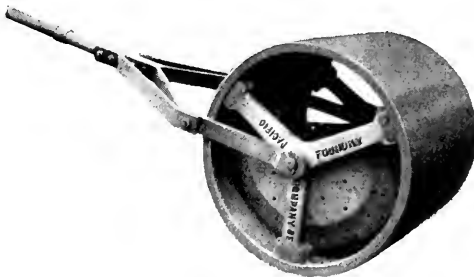
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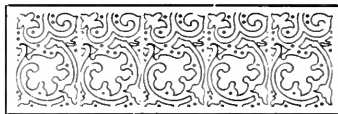
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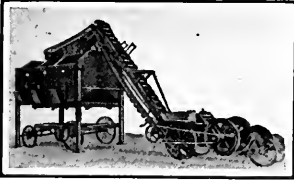
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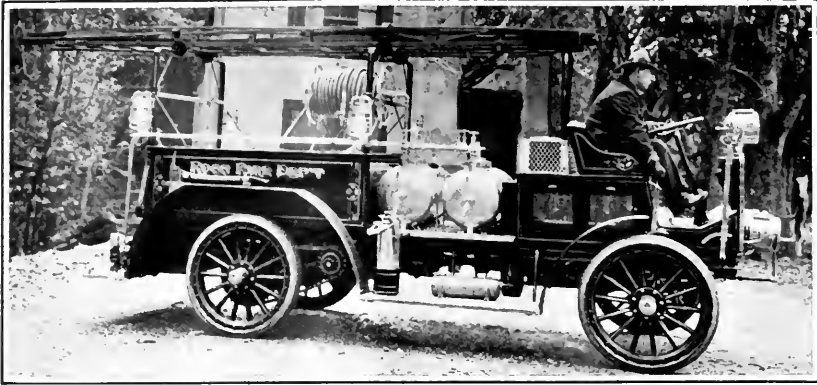
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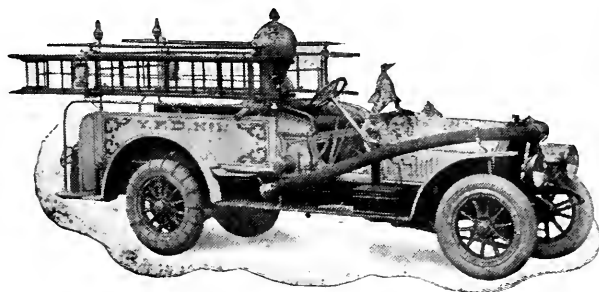
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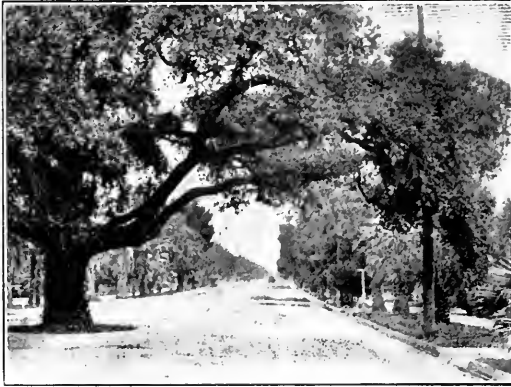
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VOL. XXV	THIRTEENTH YEAR	No. 5
<hr/>		
EDITORS	-	H. A. MASON AND WM. J. LOCKE
EDITORIAL OFFICE	-	NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO
PUBLICATION OFFICE,	-	SANTA CLARA, CALIFORNIA

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Berkeley	Huntington Park	Petaluma	Sierra Madre
Biggs	Imperial	Piedmont	Sisson
Bishop	Jackson	Pinole	Sonoma
Burlingame	Lakeport	Pittsburg	Sonora
Calistoga	Lemoore	Placerville	South Pasadena
Chico	Lindsay	Pleasanton	So. San Francisco
Coalinga	Livermore	Point Arena	St. Helena
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Colusa	Lompoc	Red Bluff	Suisun
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Corona	Los Gatos	Redwood City	Tulare
Covina	Loyalton	Richmond	Vacaville
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Ferndale	Mountain View	San Leandro	Winters
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Fowler	National City	San Mateo	Yreka
Fresno			

Each city belonging to the League of California Municipalities is entitled to a free copy of this magazine every month for each of its officials; if not received kindly notify the Secretary. See that your City is in the above list.

PACIFIC MUNICIPALITIES

A Journal for Progressive Cities

VOL. XXV

DECEMBER 30, 1911

No. 5

EXTRACT FROM THE SPECIAL REPORT ON TAXATION

by the
STATE BOARD OF EQUALIZATION.

Sacramento, December 1, 1911.

To His Excellency, HIRAM W. JOHNSON, Governor:

SIR: The State Board of Equalization respectfully submits the following Special Report. This report has been prepared for the purpose of meeting what seems to be a very general demand for official information concerning the operation, during its first year, of the tax amendment to the constitution, and especially with reference to the effect on counties and cities of the withdrawal of property formerly assessed and taxed by them, when taken in connection with their release from general state taxation. The aim has been to present facts, not to discuss or argue.

Respectfully submitted,

A. B. NYE Chairman.
EDWARD ROLKIN.
JOHN MITCHELL.
R. E. COLLINS.
JEFF McELVAINE.

T. M. EBY, Secretary.

The new tax laws and their enforcement.

The constitutional amendment, commonly known as Senate Constitutional Amendment No. 1. "providing for the separation of state and local taxation, providing for the taxation of public service and other corporations for the benefit of the State, etc.," was approved by the people of the State on November 8, 1910, by a vote of 141,312 for and 96,493 against.

The amendment provided that "all provisions of this section shall be self-executing." It fixed the first Monday in March as the date when the new taxes should be assessed and should become a lien, and the year ending December 31st as the year for which the gross receipts, used as a measure of some of the taxes should be computed. It also named the State Board of Equalization as the administrative arm of the State for the execution of the new tax laws [See article XIII, sec. 14 paragraph (f); also paragraph (c)]. Section 3692 of the Political Code further provides that the State Board of Equalization is empowered "(3) to make out, prepare and enforce the use of all forms in relation to the assessment of property, collection of taxes and revenue of this state." It thus became the duty of the board to prepare at once for the assessment of the new taxes.

The Board, accordingly, prepared a list of companies and persons subject to state taxation, prepared blank forms for reports and mailed them to each company or person subject to the tax.

Absence of serious litigation.

Up to the present time, December 1, 1911, no cases involving the validity of the State taxes have been brought into court, and the only suits which raise any issues under the new law are several involving the right of cities to levy license taxes upon corporations taxed for State purposes. Three actions were brought by the city and county of San Francisco to recover license taxes. Two were based upon an ordinance of the city and county imposing a license tax upon persons engaged in the insurance business, and the third involved the collection of a license tax from the Pacific Telephone and Telegraph Company. All three cases were tried before Hon. James M. Seawell, judge of the Superior Court in and for San Francisco, and were decided in favor of defendants.

The Board also provided six assessment rolls for franchises and one each for public-service corporations, banks and insurance.

The legislature convened in January, 1911, and, on the 28th of the same month, a bill was passed making an appropriation to be expended by the State Board of Equalization for the purpose of carrying into effect the new tax system. Early in the session there was introduced by the Hon. J. B. Curtin, Senator from the twelfth district, a bill, commonly known as Senate Bill No. 13, entitled: "An act to carry into effect the provisions of section fourteen of article thirteen of the constitution of the State of California as said constitution was amended November 8, 1910, providing for the separation of state from local taxation, and providing for the taxation of public service and other corporations, banks and insurance companies for the benefit of the State, all relating to revenue and taxation." This bill became a law April 1, 1911, and now constitutes Chapter 335 of the Statutes of the year 1911.

The effect on city taxpayers.

For city taxpayers there should be deducted in most cases from their share of the savings shown in the county tables the amounts of the loss in city taxes (or the same should be added when the county shows a loss). Sometimes, however, taxpayers in a city gain when the county as a whole loses. This is illustrated in the example given above for Riverside county where it is shown that the taxpayers in the city save \$5,415.63.

Thus while, on the county rolls, Los Angeles taxpayers save \$1,189,784.75 there will come out of that a considerable amount to cover the losses in city revenues. Data for a complete estimate of this are not available for all of the many cities in that county; nor can it be made exactly even for Los Angeles city, as reports of the property in each of the many annexes have not been made. The following facts are, however, instructive: The city of Los Angeles collects in 1911 \$4,729,567.99 as against \$4,604,068.78 in 1910 or \$125,499.21 more than last year. In addition to that, the city receives \$175,880.06 for taxes on corporations to pay bond indebtedness. The highest total tax rate paid in the city (county, school, high school and city tax rates included, but the Panama-Pacific Exposition tax excluded) was \$2.50 against a total of \$2.79 last year. Allowing for a 10 per cent horizontal raise in city valuations claimed to have been made this year, or the equivalent of 8½ cents in tax rate, the tax rate this year is 20½ cents less than last year, and yet the city has \$301,379.27 more to spend than last year. The reduction in some sections is more than the 20½ cents, which is the reduction in the oldest section of the city.

Attention should be called to the fact that as San Francisco has a city and county government combined the showing in the table for that city is final. The following will serve as an example of the method of computing the effect of the change in the state tax system upon a city:

CITY OF PETALUMA.

Total assessed valuation all property in Petaluma City, as assessed on county rolls.....		\$3,347,470 00
Property withdrawn in city on county rolls.....		149,960 00
Balance subject to county taxation.....		\$3,197,510 00
Gross saving to county tax payers in the city, 37 centson \$3,197,510		11,830 79
Deduct—		
(1) Loss in county revenues at \$1.03 (see Table III county gain or loss) on \$149,960.....	\$1,554 59	
(2) Loss in school revenues at \$0.4203 (44 cents on \$3,197,510 divided by \$3,347,470) on \$149,960.....	630 18	2,184 77
Saving, less county and school district losses.....		\$9,64602
Total assessed valuation all property on city rolls.....		\$5,004,523 00
Property withdrawn on city rolls.....		228,382 00
Balance subject to city taxation.....		\$4,776,141 00
City taxes lost at \$0.9269 (\$49,388.99 divided by \$5,004,523) on \$228,382.....	\$2,253 90	
Saving carried down from county rolls.....		\$9,646 02
Less loss in city taxes.....		2,253 90
Net saving to the tax payers in Petaluma City.....		\$7,392 12

In order to ascertain the full gain there should be added to this: (1) any increase in city tax revenues over 1910; (2) any bond taxes collected by the State and paid to the city.

Additional city statistics.

No attempt has been made to compute the gains or losses of the generality of the cities and incorporated towns, but there has been collected from nearly a hundred municipalities a mass of data which it is believed will be found valuable, because it serves to show in a general way the effect on city finances of the law separating State and local revenues. It appeared to be anticipated before the law went into operation that the cities would be the principal sufferers, because as cities they gained nothing through release from state taxes (which as cities they had never paid), while they would lose heavily by the withdrawal from local taxation of operative property, which is largely concentrated in the centers of population. Either a serious reduction in revenues or a large increase in tax rates was predicted, and since most city charters prescribe a tax limit, it was apprehended that many cities would find themselves in serious straits.

The reports received, the substance of which is printed in the two tables which follow, show that in the main, the cities have met the situation and have taken care of themselves very well. With some exceptions they have raised their assessment rolls, both by a higher valuation of property and by the addition of new values created during a period of prosperity. The first table, embracing ninety-three cities, not including San Francisco, which is treated as a county, shows an aggregate assessment roll in 1910 of \$918,114,109.00 while in 1911 these city rolls (non-operative property) aggregated \$916,846,581.00 a falling off of little more

than a million and a quarter of dollars. At the same time the combined operative rolls of these cities (omitting four which, having no outstanding debt, made no assessment of operative property) amounted to \$99,221,532.00, and non-operative and operative rolls together totaled \$1,016,068,113.00. In other words, the assessors of these cities made an assessment increase of approximately ninety-eight million dollars, more than half of which was in the single city of Los Angeles.

It should be noted that while great pains has been taken to make the county figures as nearly exact as is possible at this time, the city figures are more or less approximate. But one tax rate, and that the highest, is given for each city or town, although a good many cities, owing to successive annexes, not all of which are liable for all of the bond taxes, have several different rates. Again, in a majority of cases the taxes charged up do not include certain amounts of taxes on unsecured personal property which were collected by assessors, either in 1910 or 1911. To make the matter of more general interest there has been added to the table of tax amounts and tax rates a column showing the total rates of taxes—state, county, municipal and district—paid in the various cities and towns. This is believed to be the first time that line of data has been published. It should be hardly necessary to add that comparisons between tax rates in one city and another must be made with due reserve because between one and another there is likely to be a wide variation in the proportion of actual value of property to assessed value. The figures were secured through the courtesy of city and county officers.

TABLE II. Municipalities—City Revenues from Taxation and City Tax Rates in 1910 and 1911—Also total Tax Rates Paid in Cities.

	City taxes charged up.		City tax rate.		Total tax rate, state, county, and district.	
	1910.	1911.	1910.	1911.	1910.	1911.
Alameda.....	\$221,068 96	\$228,553 84	1.20	1.28	2.56	2.44
Alhambra.....	45,343 46	51,290 59	1.10	1.10	3.25	2.71
Anaheim.....	18,954 91	23,505 04	1.70	1.70	3.63	4.50
Belvedere.....	8,595 00	9,091 10	1.19	1.25	2.23	2.46
Berkeley.....	267,526 33	291,852 44	.75	.79	2.52	2.37
Brawley.....	14,920 12	10,909 80	1.65	1.65	4.27	4.07
Chico.....	38,393 72	39,995 67	1.55	1.65	3.70	4.15
Colton.....	27,199 45	21,044 75	1.85	2.10	3.85	5.20
Colusa.....	20,980 66	20,825 55	1.72	1.80	3.52	3.85
Corona.....	30,508 45	29,940 49	1.70	1.73	3.95	4.20
Coronado.....	30,693 80	36,765 28	1.45	1.50	3.10	3.29
Dunsmuir.....	3,187 29	2,939 16	.60	.70	1.80	3.05
Escondido.....	8,744 35	10,089 50	1.15	1.15	4.05	4.11
Eureka.....	83,086 49	83,688 89	1.10	1.10	2.85	2.80
Fresno.....	143,910 00	147,082 40	1.20	1.20	3.35	3.36
Gilroy.....	12,607 76	11,464 07	1.60	1.46	3.14	3.09
Glendale.....	17,364 24	23,594 76	1.13	1.17	3.11	3.17
Grass Valley.....	12,438 69	13,210 24	.95	1.05	3.25	3.30
Healdsburg.....	12,428 10	12,305 95	1.26	1.26	3.06	3.01
Jackson.....	3,966 12	4,155 18	.65	.70	2.19	2.72
Lindsay.....	6,953 56	16,654 14	.75	1.50	2.55	3.62
Livermore.....	9,858 92	9,473 40	1.10	1.10	2.66	2.48
Lodi.....	19,392 57	18,532 13	1.50	1.25	3.45	3.06
Long Beach.....	269,473 82	250,474 91	1.27½	1.40	3.04½	2.93
Los Angeles.....	4,604,068 78	4,729,567 99	1.43	1.48	2.79	2.55
Los Gatos.....	13,483 81	15,375 25	1.00	1.23	2.51	2.73
Loyalton.....	4,119 15	3,407 85	.75	.75	3.10	2.45
Martinez.....	9,426 71	7,783 46	.75	.75	2.47	2.46
Marysville.....	70,310 67	53,216 06	2.60	1.50	5.65	4.45
Merced.....	20,667 02	21,019 47	1.25	1.46	3.25	3.54
Modesto.....	34,433 85	48,574 30	1.50	2.00	3.75	4.20
Monrovia.....	39,020 89	52,920 44	1.45	1.50	3.62	3.80
Monterey.....	28,339 23	31,660 88	1.25	1.45	2.80	2.91

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	City taxes charged up.		City tax rate.		Total tax rate, state, county, and district.	
	1910.	1911.	1910.	1911.	1910.	1911.
Mountain View...	10,705 05	9,965 67	1.50	1.50	3.00	2.74
Napa.....	39,887 88	38,791 04	1.00	1.00	2.66	2.72
National City....	13,222 47	16,577 32	.95	1.18	3.60	3.88
Newport Beach...	12,378 10	12,719 17	.70	.70	2.06	1.98
Oakland.....	1,690,942 79	2,248,918 33	1.38	1.98	3.06	3.26
Oceanside.....	11,528 60	11,672 21	1.85	2.12	3.95	4.15
Ontario.....	38,374 14	33,743 43	1.61½	1.57	3.49½	5.12
Orange.....	19,945 97	21,261 37	1.25	1.30	2.97	3.11
Oroville.....	33,899 32	31,021 19	2.00	1.85	4.03	4.25
Oxnard.....	22,930 21	19,844 40	1.10	1.00	3.05	2.88
Pacific Grove....	20,606 59	31,295 74	.85	1.30	3.67	2.94
Palo Alto.....	36,524 25	35,943 35	.98½	.95	2.70½	2.75
Pasadena.....	420,284 53	449,003 68	.98	1.04	2.61	2.42
Petaluma.....	41,098 78	49,388 99	1.00	1.10	2.64	2.74
Piedmont.....	26,194 13	35,532 25	.75	1.00	3.20	2.83
Placerville.....	8,429 59	8,625 10	1.00	1.10	3.10	3.14
Pleasanton.....	6,324 15	5,701 13	1.50	1.50	2.86	2.72
Pomona.....	94,133 84	109,597 64	1.50	1.70	3.77	3.90
Porterville.....	22,470 17	25,238 40	1.25	1.35	3.65	4.00
Red Bluff.....	14,849 18	14,335 39	.85	.85	2.82	3.27
Redding.....	27,491 36	21,447 21*	1.55	1.40	3.12½	3.36 11-14
Redlands.....	109,232 11	116,933 32	1.30	1.30	3.55	4.55
Redondo Beach..	25,558 68	23,650 96	1.00	1.00	2.35	2.13
Redwood City....	26,866 85	28,191 10	1.87	1.73	3.21	3.25
Richmond.....	55,261 83	64,052 82	.60	.60	2.19	2.04
Riverside.....	141,515 70	150,944 00	1.50	1.65	3.55	4.00
Roseville.....	13,217 25	12,630 51	1.65	1.50	3.60	3.80
Sacramento.....	563,516 80	560,124 83	1.60	1.39	3.60	3.08
St. Helena.....	10,187 33	12,554 85	.75	1.00	2.49	3.10
Salinas.....	28,787 31	26,513 40	1.20	1.20	2.75	2.55
San Bernardino..	98,965 00	80,056 00	1.76	1.76	3.60	5.20
San Buenaventura	25,999 95	25,353 51	1.80	1.80	3.68	3.75
San Diego.....	562,712 97	645,377 15	1.30	1.45	3.30	3.45
San Jacinto.....	5,167 73	6,593 07	1.85	2.30	4.05	5.20
San Jose.....	253,893 73	275,520 03	1.14	1.21	2.68	2.54
San Leandro.....	18,463 68	21,558 93	.97	1.08	2.47	2.47
Santa Ana.....	71,771 16	68,452 32	1.20	1.20	3.96	4.68
Santa Barbara....	130,794 92	122,725 04	1.48	1.48	3.63	3.48
Santa Cruz.....	86,620 53	95,761 80	1.26	1.37	3.11	3.37
Santa Maria.....	10,083 13	9,782 97	1.00	1.00	2.73	2.63
Santa Monica....	125,218 01	134,937 73	1.65	1.35	3.55	2.90
Santa Rosa.....	83,012 40	79,362 05	1.45	1.45	3.21	3.18
Sebastopol.....	10,425 52	9,298 45	1.40	1.40	3.20	3.08
So. San Francisco	7,314 99	8,577 87	.50	.65	1.91	2.10
Stockton.....	310,914 59	316,502 80	1.67	1.62	3.35	3.42
Suisun.....	9,171 07	6,308 10	1.50	1.50	3.25	3.20
Tulare.....	12,424 42	20,568 00	1.10	1.60	3.10	3.60
Turlock.....	13,968 61	13,496 00	1.87	1.87	*6.27	*7.24
Ukiah.....	12,574 26	12,611 24	1.20	1.25	2.83	2.99
Upland.....	16,017 94	16,624 84	1.36	1.36	3.55	5.11
Vacaville.....	16,846 73	18,128 64	1.05	1.70	3.05	3.57
Vallejo.....	53,824 86	54,534 68	1.00	1.00	2.87	3.05
Venice.....	56,753 35	69,922 48	1.00	1.10	2.17	2.89
Visalia.....	44,061 44	57,311 20	1.70	1.60	3.30	3.81
Watsonville.....	23,560 52	23,926 05	1.10	1.05	2.90	3.30
Whittier.....	43,103 58	49,823 25	1.65	1.85	3.37	3.08
Willits.....	5,715 83	5,546 50	1.25	1.31 3-10	3.20	3.06 3-10
Winters.....	3,666 40	5,847 50	1.00	1.61	2.45	3.14
Yreka.....	8,790 21	8,174 08	1.50	1.50	2.70	3.30
Yuba City.....	6,895 76	6,779 26	1.10	1.20	†6.90	†8.05
Totals.....	\$11,865,565 13	\$12,826,636 32				

*Includes irrigation district taxes.

†Includes levee district taxes.

The Bond Refund Payments.

The bond payments made by the State are provided for in subdivision **e** of section 14 of article XIII of the Constitution as amended November 8, 1910. The section reads as follows:

"All property enumerated in subdivisions **a**, **b**, and **d** of this section shall be subject to taxation, in the manner provided by law, to pay the principal and interest of any bonded indebtedness created and outstanding by any city, city and county, county, town, township, or district, before the adoption of this section. The taxes so paid for principal and interest on such bonded indebtedness shall be deducted from the total amount paid in taxes for State purposes."

The taxes due the State under Amendment No. 1 are payable July 1st, which is before the counties and cities fix the rates and collect their taxes, so that the deductions of bond taxes to be paid the local units could not be made by the corporations when paying their State taxes. To overcome this difficulty and simplify the dealings in which the State, hundreds of different corporations, and three hundred counties, cities, towns and districts are involved it was provided in section 22, chapters 335, Statutes of 1911, that "all taxes assessed and levied as provided in this act shall be paid to the State Treasurer, upon the order of the Controller, without deduction for any taxes assessed and levied to pay the principal and interest of any licensed indebtedness mentioned in subdivision **e** of section 14 of article XIII of the Constitution," and sections 28 and 29 of the statute provide that the bond taxes levied by counties, cities, towns and districts, on the operative property of the public service corporations should be paid to such counties, cities, towns and districts by the State Controller in the months of October and March on the presentation of certified claims. For the payment of these claims the legislature, by Chapter 602, Statutes of 1911, appropriated \$1,500,000, of which \$650,000 became available for the fiscal year ending June 30, 1912, and \$850,000 for the following fiscal year.

This simpler method of the State collecting the full gross earnings taxes and paying the bond taxes to the local units out of this appropriation has proven satisfactory.

Although the first half of these bond taxes was to have been paid by the State in October, claims have not been received from all cities and districts entitled to a refund and many of the claims presented require corrections before they can be paid.



Chelsea Will Have Mayor and Aldermen Again.

Chelsea, Mass.—By a majority of 230, citizens voted to return to its former system of government by mayor and aldermen. After the fire which destroyed a large portion of the city two years ago, the governor of Massachusetts appointed a commission of three members to administer the affairs of the city, until such time as it was believed the government could be conducted in the regular way. The vote showed the opinion of the majority view was that emergency measures were no longer necessary.

ASSEMBLY CONSTITUTIONAL AMENDMENT NO. 12

PROPOSED BY MR. PREISKER,

December 13, 1911

Referred to Committee on Constitutional Amendments.

Resolution to Propose to the People of the State of California an Amendment to the Constitution of the State of California, by Amending Section Eight to Article Thirteen Thereof, Relating to Taxation by Counties and Municipalities.

The legislature of the State of California at its extraordinary session commencing the 27th day of November, 1911, two-thirds of all the members elected to each of the houses of said legislature, voting in favor thereof, hereby propose that section eight of article thirteen of the constitution of the State of California be amended so as to read as follows:

Section 8. Any county, city and county, city or town, is hereby empowered to raise revenues, for local purposes in such manner as may be provided by its legislative body; **provided**, that any alteration in the present manner of raising such revenues shall become operative only when approved

by majority of the voters of such county, city and county, city, or town, voting question of such alteration. Property may be classified for purposes of taxation, or exemption from taxation, and taxes or exemption therefrom shall be uniform for each such class; **provided**, that no taxation for local purposes shall be levied upon property set aside as a source of revenue for state purposes, or upon such property as is exempted from taxation by this constitution or by the laws of the United States. The legislature may provide by general laws for the time or times at which assessments may be made, taxes be collected, and penalties for delinquencies accrue.

FORMS OF FIRE AND BUILDING ORDINANCES FOR SMALL TOWNS

Address by George W. Robertson, Engineer of the Board of Fire Underwriters of the Pacific, before the Convention of the League of California Municipalities at Santa Barbara, California, October 23d to October 28th, 1911

MR. ROBERTSON: Mr. Chairman, ladies and gentlemen: I had the honor of addressing this convention last year at San Diego—the first time I had the

pleasure of appearing before you. At that time I read a paper embodying some ideas of the hazards of municipalities, small municipalities principally, but left out entirely the question of ordinances or the manner of controlling legislation to meet those hazards. I regret very much that you are now going to descend from the realm of fancy and of eloquence to a very cold-blooded and prosaic proposition. But please do not be annoyed and do not get impatient—it will be very brief.

I suppose there is no form of expression more customary, more common or heard more often, than this, "There ought to be an ordinance, or there ought to be a law." Anybody who is indignant or whose interest is aroused by passing events, particularly, of course, some catastrophe or misfortune, always says, "There ought to be a law," and then thinks no more about it. As a rule, there is a law. Nearly all of those things are provided for, and the only reason why anyone has occasion to say "There ought to be a law" is because those laws are not enforced.

There are plenty of fire ordinances at the present time, both in large communities and in small ones. The National Board of Fire Underwriters has prepared a Building Code, of which I have a copy in my hand—and which I am **not** going to read. It is a volume of about 259 pages, and it covers the subject from a to zed. There isn't anything upon the subject of the construction of any type of building which you will meet in any municipality, which is not covered by this book. This is the third edition, and the National Board is now working on an amended edition. Of course, it stands to reason that things creep up, now and again, due to catastrophes and accidents and new discoveries, etc., which make it

desirable to amend even such a complete list as this. This particular code, however, is very well gotten up, very well stated, very clear, and very complete, and any city that wishes to have such a code, is large enough to think it could use one, could do no better than to adopt this code. The mere fact that it is a publication by the National Board of Fire Underwriters, need not cast any discredit upon it. The Fire Underwriters would not derive, in fact any, protection from it, which the cities will not derive.

I am going to say that, as far as small municipalities are concerned, that is to say, municipalities from a few hundred up to 10,000 inhabitants, there are really only a few things to be considered. **The hazard of fire in such small municipalities is not particularly due to any congestion of buildings, because, as a rule, there is no such congestion.** It is not due to any crowding or to any large buildings, because as a rule there are no such large buildings. It is due principally to the hazards which obtain in small structures, small manufacturing plants, and in dwelling houses, and there are not more than half a dozen points which need be considered in these matters. Those points I propose to enumerate briefly.

Such ordinances are not usually printed, and frequently their existence is unknown to everybody but the town clerk. That official knows of them because they are contained in the minutes of the Council, and because he is their proper custodian. But because they are not printed and are not easily accessible, their terms are practically ignored. There is a sentiment, however, which is just now being fully awakened, that what is everybody's business is really everybody's business and not, as formerly, nobody's business. And

we may reasonably hope that, in course of time, some of these provisions may be enforced.

The first and most important body of rules concern buildings, the materials of which they shall be made, the manner of their construction, and the uses to which they may be put.

The ordinances will naturally begin by stating that, within certain limits naming them by boundaries or by the numbers of the blocks, or in any other certain way, certain kinds of occupancies shall not be tolerated, for instance, planing mills, hay warehouses, large frame garages, mattress factories, oil refineries, storage of inflammable or explosive materials, or such other occupancies as may seem dangerous to life or property by the manner in which its activities are conducted or by the nature of the materials involved.

In that connection I will read to you from a single ordinance of a small municipality, which, after describing the boundaries by the language, "That the following boundaries shall constitute and be known as the fire limits", etc., enumerating the streets, says: "No person shall erect or place or cause to be placed or erected any building or parts of any building within said fire limits, except as provided in sections 3, 4 and 5 of this ordinance, unless the outside and party walls are constructed of brick, stone, or other solid fireproof material, and with roof covered with slate, tile, metal, gravel, or fireproof material approved by fire underwriters, and cornices of stone, brick, or metal; the gutters shall be of metal, and in all buildings erected of stone or brick. In blocks of two or more buildings, within said fire limits, there shall be erected partition walls of stone or brick at least twelve inches in thickness, where such building is over two stories in height.

and not less than eight inches in thickness, where such building is two stories or less in height, and all party or side walls shall extend at least 38 inches above the roof.

Section 3. Small outbuildings not exceeding 10 feet in length by 10 feet in width and 10 feet in height may be erected of wood and covered with iron, within said fire limits; provided, that not more than one such building shall be erected upon one lot, or sub-division of a lot, nor shall any such building be erected within 40 feet of the street."

That is a very simple proposition, and it can be carried out in any community, no matter what the size.

The Petaluma ordinance contains some very excellent provisions. After stating that the buildings shall be of brick and stone, etc., it goes on to say as follows: "and such outer walls shall extend from the roof of the building to which they may appertain and at least two feet above the roof, and in such manner as to break entirely any communication of wood whatever, between such roof and any other building. The roofs of all buildings hereafter erected in the fire limits shall be covered with such material as will afford protection against fire, and in case of the re-construction of the walls of said building now erected in said fire limits, which walls do not extend up through the above roof as aforesaid, the same shall be extended as herein required for new buildings, and the roof covered with fireproof material. All skylights and openings through the roof to be covered with heavy wire screen of 1 inch mesh, raised 3 inches above the glass, or brackets."

This last provision, "all skylights and openings through the roof to be covered with heavy wire screen of 1 inch mesh, raised 3 inches above the glass, on brackets" is extremely important. The

object is to prevent persons on the roof, firemen and others, endeavoring to extinguish a fire, from falling through the roof, and also to prevent falling particles of fire, shingles, and so on, from falling through the skylight and setting fire to the building.

Another section of the same ordinance is: "The outer walls of all buildings hereafter erected in fire limits shall be: For one-story buildings, not less than 13 inches thick; two-story buildings, not less than 17 inches thick for first story and not less than 13 inches thick for second story; three-story, not less than 21 inches thick for first story, 17 inches thick for second story, and 13 inches thick for third story. The walls of minor additions to buildings in the fire limits must be built according to the satisfaction of and under the direction of the fire wardens."

I will not read any more of that—it is all in the same tenor, and it is thoroughly satisfactory, I think, and any town which wishes to adopt an ordinance cannot do better than to adopt that particular part of that ordinance.

One of the provisions to which I call your attention is that no small pieces of building, no outhouse, should be more than 10 feet square, and 10 feet high, and covered with iron, and should not be nearer than 40 feet from the street.

I will call your attention here to this point: **Frequently in the beginning this part of the provision is strictly observed, but by-and-by, for protection from the sun or rain, wooden awnings on the street and wooden porches and shed in the rear are added, until such additions, particularly those in the rear, with the empty boxes and such material accumulating under them, form a very considerable hazard, and have been known to carry fire through the greater part of a block. A section should be intro-**

duced at this point to cover this hazard.

Section 6 of the ordinance from which I first quoted, says, in part: "No person or persons shall re-build any wooden building that has been destroyed by fire or otherwise when the re-building thereof will be substantially the erection of a new building."

Here I call your attention to a case that took place in one of the large San Joaquin Valley cities of California. They had made fire limits, and the ordinance was being fairly well observed, but there was a large planing mill which was a real hazard to that part of the town, and everybody was wishing that it would disappear, one way or another, and never be reconstructed. It did disappear and burn up, and fortunately it burned up under such circumstances that no damage was done to the buildings surrounding it. **What did they do? Did they exclude it? Not by any means. They suspended the ordinance, so that the owner could re-build his building immediately. That is the reason why people say there should be a law, there should be an ordinance. There was an ordinance, but it was not enforced.**

The next particular point to be observed, and I am speaking now of small municipalities, because I could extend my discussion of the subject indefinitely for large cities—is the subject of chimneys. This section covers this point.

"Any chimney or flue that may hereafter be built within the city of ——— shall be constructed of brick of good quality, at least 4 inches thick, and shall have a lining of terra cotta not less than 3-4 of an inch in thickness. No chimney or flue shall be built which shall have any wood or combustible material resting upon, supporting, or entering into it." That is a very particular point. So many times chimneys

are used as supports of joint which enter into the building, and I have actually seen them build across the flue crease, and after a while the timber will char and set fire to the house.

"No chimney shall rest upon or be supported by any bracket or support secured to the wall or ceiling. A chimney shall in all cases rest upon the ground."

"Stove pipes and terra cotta pipes passing through partitions or roofs are absolutely prohibited. Stoves shall be set at least 6 inches from wooden floors and 12 inches from wooden walls, walls to be protected by sheet metal having 2 inches or more air space between it and the wall. Fireplaces to have hearths of solid brick, carbelled out from chimney bases.

"Smoke conduits for boilers, factories, and mills, and stove pipes leading from stores to chimneys, are not hereby prohibited, if the same be approved by the Town Council."

So much for chimneys. If the points heretofore spoken of and the construction of chimneys in private houses are taken care of, there remains very little to be added in point of construction for small buildings. Those are the principle hazards, and when the kind of buildings that we consider are taken into account, it is readily seen that, if those particular points are attended to, a building does not burn and there is not a fire started, because the dangerous occupancy has been excluded, and only those occupancies which are normal and do not, in the ordinary course of affairs, start fires, are allowed to be in a certain district.

Next is the storage of explosive or chemical materials. There are a number of ordinances covering this point, and I shall not undertake to give you the actual wording of those ordinances. But as a general proposition, they enu-

merate a certain amount of gun powder, nitroglycerin, blasting powder, or other explosives, in the case of mining towns, and in other places a certain number of gallons of benzine, gasoline, or other fuel oils, usually known as hydro carbons, which give off an inflammable or explosive gas. These may be stored under certain conditions, usually referable to the City Council, at a certain distance outside of the habitable or manufacturing part of the city. They store them quite successfully in large places, in large amounts, without any serious damage, but they are so stored that, if they do have anything happen to them, they do not damage anything else. Over in Richmond, on the Bay of San Francisco, a number of large tanks of such explosives are situated. Every now and then one burns, and it makes a beautiful spectacle, but they do not communicate the fire to anything else. In other places they have large tanks, 10,000 gallons or so, of benzine, gasoline, naptha, and other things, which are entirely isolated and which can burn quite freely without doing any harm. It is when those things are kept near burnable buildings that they do harm, and the ordinance of the town should provide that they be not so kept. Ordinarily it is enumerated that any persons using those things shall observe certain restrictions. I had a San Diego ordinance, which is a gasoline ordinance, by the way, although not applicable to small towns, because San Diego is a large town, and that ordinance has in it this, referring to the storage of benzine or gasoline or naptha in clothes cleaning establishments, but it will apply equally to other occupations or places in which it may be required: "It shall be unlawful for anyone to establish, conduct, or maintain, or to cause to be established, conducted,

or maintained, any clothes cleaning establishment, without first obtaining a permit in writing therefor from the Superintendent of the Department of Fires and Sewers."

That is a part of an ordinance which may very wisely be introduced everywhere where such materials are used. It might very well be introduced into an ordinance as applying to garages, because in a garage there is more likelihood of fire from carelessness than almost any other place that I know of.

MR. DODSON. We have the same provisions for a garage in San Diego.

MR. ROBERTSON. Yes, I judged you would. Referring to inside discharge systems the National Board says, "All inflammable material, in amount of 250 gallons or less shall be kept in a tank to be located outside of the building, underground, at least two feet below the surface, at least thirty feet removed from all buildings, and the top of the tank to be below the level of the lowest pipe in the building used in connection with the apparatus.

If impracticable to bury the storage tank the same may be installed in a non-combustible building or vault properly ventilated, preferably from the bottom, always remembering that the tank must be at least 30 feet removed from all buildings and below the level of the lowest pipe in the building used in connection with the apparatus.

Must be so located that no artificial light will be required while filling.

I may say that the term "inside discharge system" means that the oil or other fluid is piped from an outside storage tank and discharged inside the building.

The wording of these ordinances is, of course, about the same everywhere. It applies to a large community, or to

a small one. The main point is, to put them where they won't do any harm.

The next point which the ordinance should cover, and should cover completely, is the insulation of electrical equipment for lighting and power. This point has been as well studied and as well covered by the National Electrical Code as any one thing in the whole history of fire protection. The National Electrical Code is gotten up by, I suppose ten or a dozen bodies, such as the American Institute of Architects, the American Institute of Electrical Engineers, the American Society of Mechanical Engineers, the National Electrical Contractors Association and the National Board of Fire Underwriters, and the interests of everybody, all interests, have been consolidated and preserved with a view of making electrical installation perfectly safe. Any municipality can specify that all electrical installations within that municipality shall be made under and by provision of the electrical code. I have a legal opinion to the effect that such a statement is a sufficient compliance with the law. Several municipalities have made that provision, and they added this: **"That all electrical installations should be made by the provisions and under the electrical code, or such amendments as shall be made to it from time to time."** I believe the legal mind takes exception to this addition as not being sufficiently clear. The legal mind is peculiar. I understand now you can specify a certain year, if you like, taking the most recent code, and from time to time amending it in order to be entirely outside of the difficulty, according to the legal mind.

The next thing is, the enforcement of these ordinances, and that is the gist of the entire matter. If the ordinance is not enforced, you might just as well leave it alone. In fact, you would better

leave it alone, or you will just waste your time and your paper. An enactment should be made according to the size and resources of the town, making one or more public officials have the duty to inspect the buildings as they go up, and see that none of the provisions of the building code are broken, that none of the provisions of the electrical code are neglected, and that none of the things indicated as being unlawful or wrong shall be done. It is not expensive to build a good building. It is a little bit cheaper to build a poor one. but not very much cheaper so far as the owner is concerned, while it may be to the advantage or benefit of the contractor to slight the provisions of the ordinances, in order to make a little something extra for himself. There is no reason in the world why builders and contractors and owners should not live up to the electrical code, and be held to strict accountability in that regard.

The fire marshals, who may be covered by the terms of the ordinance, should have power, in addition to that of the building inspector, or, if the town can support a fire inspector and building inspector, it should be his duty to follow this course and see that there laws are enforced. **Also, it should be his power and he should be empowered to enter anybody's premises, and particularly the back yards of country stores in small towns, and observe the rubbish and junk stored there, and have it cleaned up, and there should be prescribed a penalty for failure to observe the fire marshal's instructions on this point.**

The cleaning up of vacant lots and the burning of grass, weeds, and such rubbish, is also most important, and it should be covered by ordinance. The fire marshal should be held to a strict observance of those things, and

if he does not do it, a new fire marshal should be obtained.

I think I have now mentioned to you all the points which are required to be observed in a building ordinance for a small community. We propose to get up a sample building ordinance, and I hope any person here who thinks of anything that has not been stated here will discuss it, because I hope to take away from here enough to make something that we can submit to the various municipalities, so that they will be very glad to pass ordinances and then see to their strict observance.

I thank you for your attention. (Applause.)

THE CHAIRMAN. The subject is now open to the members present for a short discussion on the subject, if they feel disposed. I would suggest that you confine yourselves to not to exceed a three-minute talk, and that after one person has spoken, he give way to others, if they want to speak to the subject.

COUNCILMAN HUGH CRAIG, of Piedmont. The City of Piedmont presents its compliments to the League of California Municipalities, and has placed on the chairs 100 copies of its last annual statement. We would be very much pleased if the members of the different localities represented here will please take a copy of this statement, and hack it to pieces when they get home, so that we may present an approved report another year, if that be possible. These are for your use, and we hope you will take them, and if you want to take a shot at them while you are here, let us have it.

THE ASSISTANT SECRETARY. Mr. President, I just want to call attention to one or two points in reference to the subject of Mr. Robertson's paper. Mr. Robertson was requested to deliver

this talk and this particular talk, by reason of the fact that we have many inquiries sent into the headquarters of the League in San Francisco, asking for model ordinances, for instance, covering the storage of gasoline and other combustibles, or establishing fire limits, and they invariably tack on to their communication that they want something which will be approved by the Board of Fire Underwriters. Recently I had an inquiry sent into the office from one of our Northern towns, and I gathered up all the information available and sent it to them, and afterwards I had the pleasure of meeting the City Attorney of that town (he is here with us to-day), and he informed me that he since learned that a certain fire ordinance, of the town of Healdsburg, if I remember rightly, was regarded by the Board of Fire Underwriters, as being an ideal ordinance for small towns. Shortly after that I met the Secretary of the Board of Fire Underwriters, and I mentioned that fact to him. He said to me, "That is news to me. I will look it up. Just wait a minute." He went over to his files, and looked them up, and ascertained that that ordinance was ten years old, and never was endorsed by the Board of Fire Underwriters. One object of getting Mr. Robertson here to-day was to find out what would be an acceptable ordinance for small towns, and publish it in our official organ, and send the publication of it throughout the state. I would like to ask Mr. Robertson what value he places upon stand pipes erected in a small town for some of the smaller buildings, where there is but little congestion—say there is one main street, where there will be constructed, possibly three or four buildings in a row, without fire walls between them. Is a stand pipe in a situation like that of very much value?

MR. ROBERTSON. A stand pipe is not of any particular value in any building not higher than three stories. The ordinary steam fire engine can reach those buildings very handily, and while a stand pipe or any other method of getting water on the floor of a building is a good thing, it does not become of any particular value until the buildings get a good deal higher than that. In San Francisco, if my recollection serves me, it is required in buildings of four stories and more, but not in buildings of less than four stories. So, while it may be a good thing, it is not necessarily such a good thing that it would be worth while to spend very much money upon. The last time I had the pleasure of addressing this convention, **I called the attention of the delegates to the fact that the very best provision against fire they could make would be a very good street pressure main, and that would enable them to carry hose into buildings and supply stand pipes. I did not go into this because I thought the small towns would not have them.** As I stated to you before to-day, we expect to provide such an ordinance as Mr. Locke speaks of, and I am in search of information as to what people want, as much as I am here for the purpose of giving them something. I had hoped that Mr. Craig, who is known as the great objector, would say something about it, and I hope he will.

THE CHAIRMAN. I think we will hear from Mr. Craig.

MR. CRAIG. Mr. President. Now I am in trouble. Robertson got out of this very nicely, because he is a salaried man of the Board of Fire Underwriters, and he takes his orders from them, and he regulates things in the small towns. We underwriters (and I tell you I have been in the business for

nearly forty years) are here to make money. There is nothing eelymosynary about a fire insurance company. I suppose you all understand that. Every company in San Francisco of any standing, keeps up every day, every week, every month, every year, and closes it up at the end of the year, a classification list. Some companies have 25 classifications, some have 34, the company I was with for a quarter of a century has 36. We make a tabulated statement at the end of every year, showing what class of business takes out of our pockets more than we put into them from that class, and on what class of business we make a profit. That is what any ordinary business does. When a man finds that he is running a line of business in a general warehouse or a general store, and that the sale of lettuce heads leaves a loss, he puts a loading on the lettuce heads business the next year, and he makes that business pay. He is not going to sell one article at a profit, and lose it on the sale of another one, is he? He is going to make every department of his great department store, say, pay its way, or he is going to cut it out. It is the same thing with us in this business, as Mr. Robertson has made so lucid to you. California has had a peculiar experience. We began, of course, with frame ranges. Frame ranges, and not only that, but every 10 feet or so, we had a stove pipe. If you want to make a conflagration in a small town, there is no better way of doing it than by putting up a range, say, 300 feet long, in divisions of perhaps 25 feet, with stove pipes sticking up out of the roof, and every third place a saloon. That's a 10% risk, and sometimes we won't write them even at 10%.

Now, then, when you put up a frame range here in Santa Barbara, the whole

range from the water front right up to the top of the hill a series of frame ranges, with here and there a brick in the range, of course you can only expect the underwriters to fix the rate so that he is going to make money out of the business. Then there are a lot of cities made up of frame ranges, a great big frame hotel on the top of the hill, a number of them—and out of that we expect to make money and to pay Robertson's expenses and the expenses of the Board of Underwriters, and those expenses amount to 38% to 40%. In other words, out of every dollar that you pay for insurance premiums, 40% goes back in rent, wages, and traveling and other expenses. Some of the companies run pretty close, and cut it down to 32%. But the average company has something like 40%. Out of the 60% that is left, we pay about, say, 50% in losses, and sometimes 55% or 56%, and then there is 4% or 5% left to pay dividends on the stock of the company that does your business. Therefore, I repeat we are in the business for profit, and we give you the benefit of our experience for 30 or 40 or 50 years which has shown us that in a small town, where the cheapest method of construction is that of frame construction, if you put your buildings together in a long range, you will have to pay a rate which will give us, at the end of the year, after the expenses and losses have been taken out, a profit. Isn't that exactly so, Mr. Robertson?

MR. ROBERTSON. That is it exactly.

MR. CRAIG. That is exactly what we are in it for. You may put up any kind of a building you like, and we will soak you with a rate of premium to give us a profit upon it. I repeat that that is what we are in business for, and any intelligent man who appears here as a

delegate from any municipality in the State of California knows that. What is the result? If you will give us a good water supply, with a good pressure, and a standard 2 1/2 inch hose, and a fire chief and assistants, with a partially paid department, then when a fire occurs the boys will come along and put this hose on under good pressure, and they will rip the wooden building all to pieces and keep the fire down—keep it within the first, second, or third exposure. When, on the other hand, you add to the one-story row of buildings, by making them two or three or four stories in height on each side, there you are making conflagration hazards upon which you are going to be charged 5% or 6 %. In other words, it is up to the little cities to think those things out for themselves. When it comes to a planing mill, and the hazard of a factory that deals altogether in wood, there you have the very quintessence of an 8% or 10% or 12% risk. In Astoria I have charged 12% in a frame range. You will understand, gentlemen, that I am giving you this in a friendly kind of way. I have no panacea for saving the little town, built of frame buildings, from a conflagration hazard. In those cases, it is up to the people themselves to take care of their ranges, to keep the structures low, to obtain, as far as possible, a good fire pressure, to organize a local fire brigade, and every one of those things are allowed for in the rating that is made by the specials who are sent out by the Board of Directors to fix the rate in that particular city. I thank you. (Applause.)

MAYOR HENDERSON, of Astoria. I am glad to hear the gentleman who has just spoken speak as candidly as he did. I never could understand before why it was, in our community, that has not had a fire within the recol-

lection of the oldest inhabitant, 12%—what do you think of that.

MR. CRAIG. There was one, but it was before Henderson was born.

MAYOR HENDERSON. That was not really, Mr. Chairman, what I got up to say. The enforcement of these ordinances—how would a system like this work? The chief of the fire department in the smaller cities is generally a man that has not much to do, who wears brass buttons and looks nice. Upon the inspection of the building and a possible resulting fire depends the lease of his job. **Therefore make him fire inspector, and let him watch every building that is put up, to see that it is put up according to the ordinances as previously have been enacted.** It strikes me that would be a good plan, so far as the enforcement of the ordinance is concerned, that if the inspector reports that a building is not built in compliance with the ordinance as passed, it shall be his duty to see that the building is not occupied.

MR. CRAIG. I think that is a capital idea, and the underwriters for the last half century have been trying to inaugurate that method. But, as Mr. Robertson has just told you, that fire chief is dependent for his living upon his job, on somebody there who has votes, and just as long as it is put up to the fire chief that he is likely to lose his job if he exacts strict compliance with the ordinance, just so long it has a different complexion to the fire chief. As Mr. Robertson has explained, the fire Chief will go to one of the Board of Trustees of the sixth class, like mine, and, unfortunately, an officer likes to be re-elected so that they even suspend an ordinance and allow them to put back a disreputable building in the place of one that has been burned down.

MAYOR HENDERSON. In reply

to that suggestion, I will say that in some of the Oregon towns that are not bothered with legislatures, the mayor suspends the chief, and he gets out in a twinkling—he does not ask him for votes up there.

MAYOR HALL, of Watsonville. I would like to ask Mr. Robertson what his experience is, by way of comparison, with municipally owned water works and private water works, so far as protection against fire is concerned.

MR. ROBERTSON. I don't know that I can answer that question in just the way in which it is stated. I don't exactly know what the gentleman means. Does he mean whether one or the other is more efficiently conducted?

MR. HALL. As a rule, are they more efficiently conducted, or not?

MR. ROBERTSON. We have on the coast here three large cities which have municipally owned water works, Portland, Seattle and Los Angeles. So far as Portland and Los Angeles are concerned, they are very efficiently handled. In fact, they are all efficiently handled. **The only large city which I know which has a privately owned water works is the city of San Francisco, which is supplied by the Spring Valley Water Company, and that is not so efficiently handled.** There was a time when the Spring Valley supply was adequate for all the fire protection required. But since the earthquake and conflagration following it, the supply has not been so good, and I rather think it would be deficient in case of stress. In some parts of the city, it certainly would. **Generally speaking, I think that if it is a good community (and it always comes back to the community) a municipally owned water supply is far superior to any privately owned water supply, because the privately owned water supply is always quarreling with the city.** If

there is any city that does not, I don't know about it. I would like to say to Mayor Henderson that his idea is first class, and would ask nothing better. The same idea is in effect in Germany, that when a fire occurs, a rigid investigation is begun at once by the fire corps and by municipal inspectors, and the responsibility for the fire is pursued clear down to some person who is punished. It may go through the several owners of the buildings; the fault may have been with the architect who designed it, or with the contractor who built it, perhaps with the connivance of the owners of the building. If they can show that they are guiltless of any contributory negligence in the result, they are not punished; but if they knew about it and did not take measures to remedy it, they are also punished, and that includes an indemnity to the person who has lost by the fire, the owner. Mr. Henderson's idea is excellent, and if it could be enforced, it is very good.

THE SECRETARY. Let me ask a question. How would this suggestion work out? **Suppose we turn the matter of inspection, or of the enforcement of ordinances, over to the insurance companies, and let their local agents or their traveling men visit each town from time to time and ascertain whether or not those ordinances are in effect?** You have seen the power of the insurance companies to penalize any community by increasing its rate. Surely they could in that way insure the enforcement of ordinances. Suppose we were to turn the matter directly over to the insurance companies, in other words.

MR. ROBERTSON. As a matter of fact we do that, but we don't do it to the extent that it should be done. We merely do it as a matter of self-protection. If a town allows its water supply to fall down, if the town decreases

the water supply, we take notice of it. We will take a small town of, say, a couple of thousand or 5,000 inhabitants, and assume that their first pipe is a 10 inch pipe down the main streets, and then 8, 6, and 4 inch pipes leading out into the other streets and the more remote parts, and perhaps the supply is by gravity, reservoir containing two or three hundred thousand gallons of water and 500 gallon or 1000 gallon pump—that, we will say, is a sufficient system. But suppose we decrease that supply. The first thing you know the supply is not adequate to the needs of the city, and then the natural thing follows in the way of rate.

THE SECRETARY. Have you a list of towns in California that have been penalized in that way?

MR. ROBERTSON. No, sir, I have not. I do not make rates.

THE SECRETARY. Could we get that information from your Board?

MR. ROBERTSON. I suppose you could, yes.

THE SECRETARY. I suppose by applying to any given town, you could ascertain whether that particular one had been penalized by having its rate raised on account of an inadequate water supply?

MR. ROBERTSON. Surely you could. We make inspections. It is part of the duties of my department, the engineering department, to make inspections from time to time of the water supplies of the various towns in which we write insurance. Those reports give the size of the pumps, the general climatic conditions of the town, the character of the buildings, the amount of fire protection, the character of the streets, and that forms the basis of the rate upon which the city is charged, the insurance rate. Recently many cities have been busying

themselves improving those conditions, and they have had their rates reduced. To put the burden of all inspection upon the Board of Underwriters, or underwriters generally, would be asking quite a good deal. We do an awful lot of it as it is, and we are not popular on that account. If an inspector comes into a man's back yard and finds conditions there for which the man should be punished but for which he is not punished, and as the result of which conditions he is likely to burn up the city, the only recourse the inspector has is to have the rate raised, and that is not encouraging.

THE SECRETARY. What degree of publicity do you give to those reports of yours?

MR. ROBERTSON. None whatever.

THE SECRETARY. Would it not be a good idea to give them publicity?

MR. ROBERTSON. Sometimes the agents inform them of it, and we take it up with them.

THE SECRETARY. Would it not be a good idea for you to make an annual report, with ratings each year, and ratings increased or decreased, and give the reasons for them, and circulate them among all the cities and city officials of the state.

MR. ROBERTSON. I doubt if we could do that very well.

THE SECRETARY. Would it not be a good idea if you could?

MR. ROBERTSON. Possibly.

THE SECRETARY. It is publicity, and publicity is a cure for many ills.

MR. ROBERTSON. That is quite true. A great deal of that is remedied by reason of our inspections, and if the inspector were made a little more welcome and treated a little better, the inspections would be very much more valuable to the person inspected.

THE STERILIZATION OF WATER SUPPLIES BY THE USE OF HYPO-CHLORITES

BY CHARLES GILMAN HYDE, SANITARY AND HYDRAULIC ENGINEER*

Introductory portion of a paper presented at the Santa Barbara meeting, League of California Municipalities, Oct. 26, 1911

[EDITOR'S NOTE—It is claimed that this address by Professor Hyde was one of the best presented at this convention. In consideration of the importance of the subject treated, we are running the introductory portion of his address in this issue. It will be published in full, however, in the volume containing the entire proceedings, copies of which will be sent to each city and town within the next two weeks.]

Relationship Between Public Water Supplies and Public Health.

The intimate relationship between public water supplies and public health has been indisputably established by sad human experience on the one hand, and on the other by the painstaking and comprehensive investigations of trained sanitarians and sanitary engineers, working both in the laboratory and in the field. The use of polluted water for drinking and for general water supply purposes has too often resulted in extraordinary morbidity and mortality, not only from those intestinal diseases whose germs are so commonly conveyed by water that they have become known as the "water-borne" diseases, but also from an almost staggering array of other diseases which only recently have been demonstrated, under certain conditions, to be attributable, at least in part, to contaminated drinking waters.

The Water-borne Diseases.

In the list of well-demonstrated water-borne diseases are to be found typhoid fever, cholera, dysentery, diarrhoea and anthrax. More recently, it has been conclusively shown that polluted water supplies may sometimes be responsible for a part of the sickness and death due

to para-typhoid fever and para-dysentery, from certain streptococcal and staphylococcal infections and perhaps even from tuberculosis, pneumonia, bronchitis and certain infant disorders.

The Hazen Theorem.

Messrs. Mills (1893), Reincke (1893), Hazen (1904), Sedgwick (1910), *Prof. of Sanitary engineering, University of California, and others have shown that when a pure water supply has replaced an impure one in a community, the general death rate therein is generally reduced to a considerably greater degree than would be accounted for by the reduced prevalence of typhoid fever and other recognized typical water-borne diseases. A study of the vital statistics of numerous places where the quality of the public water supply has suddenly been changed from bad to excellent, as for instance, by the construction and proper operation of adequate purification works, has shown that for every person thus saved from death from typhoid fever approximately three other persons are saved from death from other causes many of which have probably never been thought to have any direct connection with or to be especially affected or influenced by the quality of the public water supply. This numerical statement of the reduction in death rate more or less directly due to improved water supplies has recently become known as the Hazen Theorem because Mr. Allen Hazen, in 1904-'05, was the first to announce, in definite terms, this interesting and most encouraging phe-

nomenon. Even such unexpected diseases as tuberculosis, pneumonia, bronchitis and a series of disturbances causing undue mortality among infants seem to be decidedly affected by such changes in the quality of the water supply. From general principles it is to be inferred that the drinking of a polluted and insanitary water supply must surely tend to lower the vital resistance. On the other hand, an improved water supply must mean a real improvement in the general health tone of the community, a real uplift and reinforcement, rather than an impairment, of the vital resistance of the consumers of such supplies.

General Prevalence of Typhoid Fever in the United States and California.

It has recently been stated that typhoid fever, at the present time in the United States, is the cause of some 450,000 cases and perhaps 35,000 deaths annually. The persons attacked are, in a large measure, at the period of their maximum earning capacity and it has been estimated that a possible economic loss of \$150,000,000 is thereby annually entailed. California is in no wise exempt from this or other diseases which may primarily be classed as water-borne and the people of this state today have very much the same problems to face as have the inhabitants of the older and more congested sections of the country. By no means all of the sickness and death from this dread disease, typhoid fever, is caused by polluted water, but it is safe to say, taking any fairly large territory into consideration, that a very substantial proportion is chargeable to this vehicle of infection.

The Demand for Water Supplies of Better Sanitary and Aesthetic Character.

Gradually, step by step, people have come to demand water supplies of better hygienic and aesthetic character. At first, the quantitative requirement seems

to have been considered of paramount importance; next, waters of pleasing appearance as well as adequacy of volume were demanded; and, at length, waters free from disease germs, until finally, on the part of our more enlightened and progressive communities, the demand is just beginning to arise for waters which not only fulfill the foregoing requirements but which are actually practically free from all bacterial life.

The Bacterial Contamination of Water Supplies.

In waters which are exposed to contamination by the wastes and by products of human and animal existence, practically the former, it is apparent that, under some circumstances, especially in the case of surface waters, bacteria of all kinds may be found; those that are harmless, those that are more or less dangerous according to circumstances, and those which are always associated with human disease. There are a good many water supplies which are quite satisfactory from the standpoint of quantity and appearance but which are not altogether safe for drinking purposes due either to a more or less constant pollution by residents of the drainage basin or to the potential danger of temporary infection by campers, picnickers, etc. Moreover, changing conditions may suddenly produce temporary contamination of a dangerous sort which must be overcome quickly and effectively. For such conditions the method of treatment described herein is primarily applicable, as will later be shown in detail.

Necessity for Some Cheap and Effective Sterilizing Agent

It has long been the hope of sanitary engineers to discover some means of effectively and reliably destroying, at no great expense, the bacteria in waters

which might otherwise be suitable for domestic purposes and do not require filtration or other elaborate processes of purification; also a means of destroying the bacteria remaining in the effluents from filters and other purification works; and furthermore, as noted above, a means of quickly and effectively sterilizing water supplies which have, through accident or suddenly changing conditions, become dangerously polluted. It may be stated as an axiom that the more completely all bacteria are removed from a water supply the more completely are the undesirable and dangerous species removed. If the process of purification is so efficient as to render the water actually sterile then it is evident that all danger of specific diseases due to this source is absolutely and most effectively eliminated. It would appear that, in the use of the hypochlorites of calcium and sodium, such a means of sterilization of water supplies has at length been obtained and the exploitation of this process marks a distinct advance in the art of water purification. As will be shown later, however, the process is subject to very definite limitations and should not be invoked as a panacea for all troubles due to impure or otherwise undesirable waters intended for domestic use.

Available Sterilizing Agents

Among the very numerous sterilizing agents known today it is evident that all of those which act by virtue of the poisonous or toxic substances which they contain must be eliminated from consideration for the sterilization of drinking water supplies on the general, and probably correct, theory that anything of this nature which would be poisonous to bacterial life would also be toxic to man unless, perchance, such substance should have a purely selective action

upon the bacteria and could therefore be used in quantities sufficient to destroy them but yet be so minute as to have no physiological significance to man. On account of their toxic properties a large proportion of the disinfectants otherwise available are, from the nature of the case, debarred from use for the purpose in question. It has long been known, however, that certain powerful oxidizing agents such as ozone and nascent oxygen are very destructive of the bacteria as a class and that these substances are either not harmful to man when present in quantities sufficient for the destruction of the bacteria or they may be subsequently readily neutralized and dispelled. Naturally, also, no substance can be selected for the purpose of water sterilization which cannot fulfill the requirements of reasonable cost.

For direct application to water, there are probably five substances which seem to be worthy of consideration for the purpose in view. These are calcium hypochlorite, sodium hypochlorite, ozone permanganate of potash, and peroxide of hydrogen.

An extended discussion of the advantages and disadvantages of each of these substances is deemed to be aside from the present purpose of this paper. In brief, it may be said that ozone treatment has, up to the present time, been too cumbersome, too expensive and not sufficiently reliable to permit it to become a definitely available and at all popular method of water purification. The use of potassium permanganate will probably always be very limited owing to its high cost and relatively low efficiency. Peroxide of hydrogen must be excluded on account of its present high cost and the difficulties attending its transportation and use. The other available sterilizing agents, namely calcium hypochlorite (bleaching powder)

and sodium hypochlorite (sometimes called electrolytic bleach or electro-chlorine) are both entirely suitable for water sterilization and the decision as to which shall be employed in any case must be based upon a consideration of the relative satisfaction of use, of the amount of attendance involved, of the efficiency, and of the cost of the treatment therewith. It is probably true, for the conditions which obtain in California in most small communities using comparatively small quantities of water, that calcium hypochlorite will prove superior to any known sterilizing agent from the standpoints of reliability, ease of manipulation and cost.

Purpose of Discussion

It is the purpose of this discussion to present, in rather brief and untechnical terms, some of the leading features of this new method of water purification, including the nature and properties of the chemicals employed, their mode of action, the results and cost of treatment, an outline of the principal elements of water sterilizing plants as ordinarily constructed, and, perhaps especially, the proper field of application and well defined limitations of the process.

HISTORICAL NOTES

First Use of Hypochlorites for the Continuous Sterilization of Water

The idea of employing hypochlorites as a regular, definite means of continuous sterilization of public water supplies dates back only a little more than three years. In June, 1908, Dr. J. L. Leal, Director of Sanitation of the Jersey City Water Supply Co. and the East Jersey Water Co., recommended the use of calcium hypochlorite (bleaching powder)

or the treatment of the water supply of Jersey City derived from the Boonton Reservoir of the Jersey City Water Supply Co., and engaged the firm of Messrs. Hering and Fuller, Sanitary Engineers, of New York City, to design the necessary works, and Mr. George A. Johnson, of that firm, to operate them.

The works were placed in service in September, 1908, since which time they have been continuously operated with extremely satisfactory results.

Early in August 1908 Mr. George A. Johnson determined upon the use of bleaching powder as an adjunct in the purification of the excessively polluted water (almost sewage) of Bubbly Creek—officially known as the Stock Yards Slip, the easterly arm of the south fork of the south branch of the Chicago River—for the water supply of the Union Stock Yards. The results of this application of bleaching powder have been very remarkable and especially interesting in view of the utter failure of copper sulphate to perform the work which it had been rather confidentially expected to perform and which bleaching powder readily accomplished.

These installations were widely exploited and mark the real beginning of a general recognition of the possibilities and field of application of the hypochlorite of calcium (and naturally of an analogous product, the hypochlorite of sodium, as well) as a definite treatment, under certain restricted conditions, for many water supplies throughout the country. To Mr. Leal, Mr. Johnson and their associates engaged in these initial enterprises, must be given a great deal of credit for originality, far-sightedness and resourcefulness.

THE CHICAGO LAND SHOW

CHICAGO, December 10th: The third great annual Land and Irrigation Show, which has been holding the boards at the Coliseum for the past month, closed last night after the most interesting and successful season thus far inaugurated. More than 200,000 persons passed through the gates of the Exposition this year, totally eclipsing all former records of attendance. Of these over 150,000—or seventy-five per cent—were interested auditors in the lecture halls maintained by the Southern Pacific railroad lines, where they were entertained with descriptions, moving pictures and stereopticon views of the vast territory covered by these lines.

Twenty thousand dollars were spent by the transportation company in the construction and equipment of free lecture halls, in which thirty-minute talks were given by representatives of different California communities. In all, 473 lectures were given—many of them illustrated—and the amount of literature distributed is estimated to have been close to two million pieces. The attendance at the lectures exceeded that of last year by fifty thousand.

"California" elicited more interest, inquiry and enthusiasm than any other section, though liberal time was devoted to Nevada, Utah, Colorado, Washington,

Oregon, Texas and other western states. On "Texas Day," for instance, one of the leading speakers was Judge Robert S. Lovett, chairman of the executive board of the Southern Pacific, who described his recent "swing 'round the circle" to an immense crowd assembled in one of the lecture rooms. Other speakers—railroad men, chamber-of-commerce officials, farmers and merchants—pointed out the advantages of the West, always to large and attentive gatherings of persons.

Fifty-five thousand visitors passed through the turn-stiles on "California Day" at the Land Show. Once inside they were presented with liberal samples of California products—fruits, berries, wines, nuts, raisins, etc.,—together with many pieces of attractive literature, describing the Golden State. All of this material was transported to Chicago free of charge, the railroads making this part of their contribution toward the success of the big show. Among the speakers who used the lecture halls were A. Miot, San Joaquin Valley; Miss Gifford, Sacramento Valley; Francis Hope on "Luther Burbank"; Wilbur Walker, Central California; J. W. Erwin, W. B. Leffingwell and Colonel Holp, on "Yosemite," "New California," and "New San Francisco." Thousands of inquiries followed the lectures.

Rejects Commission Plan.

Council Bluffs, Ia.—The commission plan of city government was rejected by Council Bluffs by a majority of 422 votes. About half of the voters in the city registered. The campaign has been brief and no organized force worked either for or against the measure, although it has been supported by the

papers of the city. The districts in the business portions supported the measure, while outlying districts registered strong opposition.

Oshkosh, Wis.—By a vote of 2,041 to 1,730 the city of Oshkosh has declared for the commission form of government.



Q When a man feels the necessity of being in two places at the same time he goes to the nearest telephone and sends his voice. It is not exactly the same thing but when a man talks hundreds of miles in opposite directions from the same Bell Telephone, it is about as good. In the daily use of the telephone a man travels all over town by wire in a few minutes. It is just as easy to travel all over the state and other states by means of the universal Long Distance Service of the Bell System.



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QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry.

Q. I am very desirous of getting a full text of the last New York decision relative to Warren Brothers Patent. I would also like to get either their patent number or a description of the ingredients used in the Warren Brothers Patent.

ANS. Your inquiry of Dec. 5th just received. Enclosed you will find a copy of the full text of the decision of the United States Circuit Court relative to Warren Brothers patent. The City of New York appealed this case, but the United States Circuit Court of Appeals, Second Circuit, upheld the decision.

It will probably interest you to know that the famous Orange Grove Avenue of Pasadena is now being paved with

Warren Brothers patent pavement, under a license agreement secured from said company, whereby it is agreed to pay their customary royalty. The principal claim of this patent is that a pavement constructed in accordance therewith requires the least amount of binding material, contains the smallest amount of voids, and consequently has the greatest inherent stability. As Judge Lurton, who wrote the last decision which strongly upholds the patent, is now a member of the Supreme Court of the United States, we are inclined to think that the chance of securing a reversal of this opinion is quite remote.

Q. Referring to my letter of June 20, 1911, to you, and your reply of the 30th. I beg to inquire if you have any further information as to the right of municipalities to collect license taxes from corporations for doing business under municipal ordinances.

I have not seen any announcement of decisions of the court, settling this matter.

ANS. The City of San Francisco, in order to test the law and get a decision, brought an action against the Telephone Company. A decision was recently handed down declaring that a municipality could not impose and collect a license tax from such corporations.

Q. In the case of a street "pavement" composed of two parts the lower known as foundation or base and the upper known as wearing surface, will the reconstruction of an entire new wearing surface be considered as "repaving" or "repairs"?

ANS. The courts have held such work to be "repaving" and not repairs.

Barber Asphalt Paving Co. vs. Muehlenberger, 78 S. W. 280.

People vs. Buffalo, 65 New York Suppl. 163.

In view of those decisions we are inclined to think that re-surfacing with another material would also constitute repaving and not repairs.

Q. May property owners again be assessed for the paving or repaving of streets which were once paved under the Vrooman Act, and accepted according to Section 20 of said Act as it formerly stood?

ANS. Yes; the provision to keep the so-called accepted streets in repair did not constitute a contract, but was merely a statutory provision embodied in ordinary legislation, and as such was subject to amendment or appeal at any time.

Ladd vs. City of Portland, 32 Or. 271; also another case reported in 119 N. W. 119.

Q. Is it lawful to receive the application for a saloon license, act upon and grant same at a special meeting called only for the expressed purpose of considering matters con-

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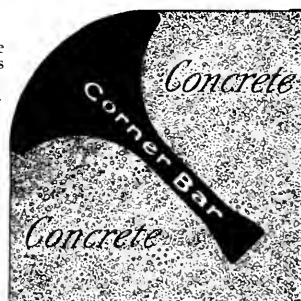
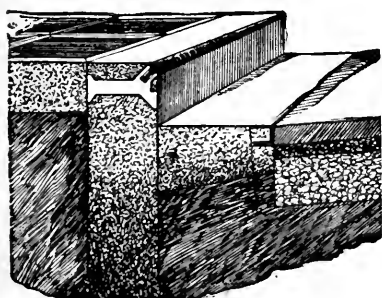
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California

nected with the acceptance of a sewer system?

ANS. We reply to your inquiries just received, as follows: Although not in accord with parliamentary rules, there is nothing in the law which prohibits the receipt of an application and granting of a saloon license at a special meeting of the trustees of a city of the sixth class.

Q. Is there any doubt as to the power of a city of the fifth class to provide by ordinance for the cleaning of overgrown city lots by the City, after failure of the owner to do so on notice, when it shall become necessary in the judgment of the Board of Trustees as a prevention against fire, and making such charge a lien on the lot, and collectible as and at the time of City taxes? The purpose is to reach non-resident landholders, against whom a penal ordinance would be ineffective.

ANS. You may provide that the cost will constitute a lien on the property, but it can only be collected by a regular judicial action and not as and at the time of city taxes.

Q. Our city is contemplating the passing of an ordinance requiring the use of screens or other appliances on all chimneys where oil is being burned to prevent the escape of soot. It was suggested that I write to you in regard to this matter, as you would probably have, or be able to procure, an ordinance from the cities of the state bearing on such matters. If you have such an ordinance or can get the same for me, it would be an accommodation greatly appreciated. Thanking you in advance for your courtesy in this matter, I am—

ANS. In reply to yours of Dec. 20th we enclose a copy of an ordinance of

the City of Redlands. Considerable difficulty is liable to be encountered in attempting to enforce ordinance of this character, for the reason that it is not altogether practical to prevent the discharge or escape of a certain amount of soot. It is claimed that trouble of this character is often due to a poor quality of burner.

Q. One of our citizens purchased some lots within the town limits across which it has been customary for teams and other conveyances to be driven, using it as a road, although it was never intended to be used as such nor has it been dedicated for that purpose; this property was never fenced and for a number of years has been used as stated. In making the conveyance the grantor excepted that portion of the said lots used as a road agreeing to convey the part excepted when relinquishment of any claims thereto was obtained by the grantee from the proper authorities.

Since we claim no interest in said road we will thank you to indicate to us in what manner we can grant the request of petitioner.

ANS. Replying to your inquiry of Nov. 27th, will say that the grantor should have conveyed all of the said lots without making any exception. Long usage without any formal dedication and subsequent acceptance by the town does not now give a title by prescription.

We presume the grantor paid taxes on it and this is held to be constructive possession, and the law holds that be-

cause he did that he still owns and possesses the property, even though it has been used for some time as a road. The proper remedy is to have the grantor make a new deed describing the lots without excepting any portion of them. If he refuses to do this the only remedy for the grantee is to commence suit to enforce specific performance of a contract. The town has nothing to relinquish, therefore no action the trustees could take would avail anything.

We cannot understand why the grantor should refuse to convey what he acquired; no possible harm can come to him by such an action.

Q. Will you please inform me how a proposition of this kind should be settled.

Now we have let a contract to a certain man to remove a certain pile of dirt and the contractor has employed some men to help him and the men want the City to protect them when the job is done and see that they get their just amount of wages due them. Has the City any right to protect the men employed by the contractor without an order from the contractor?

ANS. Answering yours of Nov. 14th will reply as follows: It has been held that a lien will not lie against a municipality, but down here in San Francisco they make a practice of recognizing notices of claim of lien nevertheless, basing their authority as we understand, on Section 1184 of the Code of Civil Procedure.

If those employees file a notice and claim with the Board, specifying the amount and making it under oath, we would advise that you recognize such claims and withhold the amounts from the money due the contractor, for the benefit of the claimants.

Q. Can you tell us if the suction sweeper such as the one used in Santa Barbara is a success?

ANS. We are informed that it does not do the work and that its use has

been discontinued in several places where it was tried.



THE SANITARY MIRACLE AT PANAMA

The conquest of the tropics by American sanitation is not the least remarkable accomplishment that has attended the construction of the Panama canal. When the Panaman railway was built across the isthmus it was common repute that a life was lost for every tie that was laid for the roadbed. This plague spot of former years has been converted into a health resort.

Charles Francis Adams, in a paper read before the Massachusetts historical society, relating the experiences of a recent visit to the canal, said:

From the moment I reached the isthmus till the day I left it what most impressed me was not the magnitude of the undertaking, the engineering and material difficulties encountered in carrying it to a successful issue, but the morale apparent in those I encountered, the high standard of their physical condition and the energy, alertness and zeal with which amid tropical surroundings all from highest to lowest went at their work.

* * * * *

But when it comes to the sanitation which made all that is now going on at Panama humanly and humanely possible—vanquishing pestilence and, while harnessing the Chagres, also making it innocuous to those both working and dwelling on its banks—this is new; and the like of it the world had not before seen.

* * * * *

Olympia, Wash.—Olympia rejected the commission form of government by a majority of 68 votes.

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Mention Pacific Municipalities when writing for catalogs

What the Cities are Doing

Pomona is to have a municipal swimming pool.

Roseville is planning some extensive street work.

San Jose is about to purchase a new rock crusher.

Stockton has purchased a lot of additional fire hose.

Hemet is considering the construction of a sewer system.

Santa Monica is installing additional fire fighting apparatus.

Modesto is planning a new high school to cost about \$96,500.

Chico is about to construct a 16-inch sewer, about 1,100 feet long.

Sonoma is about to purchase 700 feet of fire hose and a hose cart.

Berkeley is considering the construction of a municipal lighting plant.

Eureka councilmen have decided to purchase a chemical fire engine.

San Mateo is considering the purchase of the plant of a local water company.

Fullerton recently voted dry by 540 to 190, the women voting for the first time.

Newman citizens are raising funds for the purchase of additional fire apparatus.

Antioch is considering the construction of a municipal lighting and power plant.

Pasadena citizens are petitioning for the construction of a municipal street railroad.

Lodi citizens are thinking of expending about \$4,000 for fire department apparatus.

Santa Cruz is advertising for a motor propelled combination chemical and hose wagon.

Oroville trustees are discussing proposed improvements to their fire fighting equipment.

Sonoma. Fire Chief Rother has asked authority to purchase 500 feet of additional fire hose.

St. Helena trustees have authorized the purchase of a chemical engine for the fire department.

Elk Grove citizens are collecting money for more fire hose and other fire fighting equipment.

Lemoore trustees have been enjoined from awarding a sewer contract to one who was not the lowest bidder.

Watsonville will vote on the question of issuing \$110,000 bonds for a municipal water system, on January 9.

Palo Alto. Mayor Jordan is advocating a systematic planting of ornamental street trees to beautify the city.

Rio Vista trustees have decided to substitute 60 tungsten lamps for the 14 arc and 8 incandescent lights now used.

Upland. trustees have directed the sale of \$10,000 bonds voted recently for the purchase of a site for a city hall.

Palo Alto has authorized the erection of a large electric sign across University Avenue showing the words "Palo Alto".

Santa Ana voted \$200,000 polytechnic high school bonds, and \$25,000 grammar school bonds on Dec. 14. More women voted than men.

Santa Barbara officials have decided to purchase the property of the Santa Barbara Water Co. for \$150,000 payable in 10 annual installments.

Roseville, a Southern Pacific shop town 18 miles east of Sacramento, has petitions in circulation for the recall of the trustees.

The petitions charge that the trustees diverted the money voted for certain public improvements to other uses than named in the bond ordinance; that they failed to build a municipal lighting plant when \$9,000 had been voted for that purpose; that they failed to fix reasonable water rates, allowing the company to collect over twice the rates paid in Sacramento, and that they appointed a large force of special deputies to protect the railroad shops in spite of a citizen's petition of protest.

Vancouver, Wash.—The commission form of government was defeated here by a vote of more than two to one.

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

Write for Catalogs. Mention Pacific Municipalities When Writing

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S. F.

Asphalt Machinery

A. L. Young M'chy Co., 26-28 Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Arch. Terra Cotta

Gladding, McBean & Co., Crocker Bldg., S. F.
Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Automobile Public Service Wagons

Reliance Auto. Co., 342 Van Ness Ave., S. F.
American La France Fire Eng. Co., 660 Mission St., S. F.
Gorham Eng. & Fire App. Co., 48 Fremont S. F.
Webb Motor Fire Apparatus Co., 550 Montgomery St., S. F.

Bells

W. T. Garratt & Co., 277-279 Fremont St., S. F.

Bitulithic Pavement

Warren Brothers Company, Los Angeles, Cal.

Blue Prints

So. Cal. Blue Print & Supply Co., 800 American Bank Bldg., Los Angeles.

Concrete Construction

Esterly Con. Co., Inc., 717 Market St., S. F.

Concrete Mixers

Barber Asphalt Paving Co., S. F. & L. A.

Constructing Engineers

Geo. E. Dow Pumping Engine Co., S. F. & L. A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.
American Engineering Corporation, 57 Post St., S. F.
Stephen E. Kieffer, 1st Natl. Bank, Oakland

Culverts

Cal. Corrugated Culvert Co., Los Angeles and W. Berkeley
Standard Corrugated Pipe Co., S. F.

Dump Carts and Wagons

A. L. Young M'chy Co., 26-28 Fremont St., S. F.
Watson Wagon Co., Canastota, N. Y.

Electrical Plants & Machinery

A. L. Young M'chy Co., Fremont St., S. F.

Engravers and Bond Printers

A. Carlisle & Co., 251 Bush St., S. F.
Sierra Art Eng. Co., Front & Com. Sts., S. F.

Engineers' Supplies

W. T. Garratt & Co., 277-279 Fremont St., S. F.

Fire Department Equipment

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Engines

Gorham Eng. & Fire App. Co., 48 Fremont St. S. F.

Squires & Byrne Co., 565-567 Mission St., S. F.
Pacific Fire Extinguisher Co., 507 Montgomery St., S. F.

Fire Hose

Gorham Eng. & Fire App. Co., 48 Fremont St. S. F.
The Gutta Percha & Rubber Mfg. Co., 34 Fremont St., S. F.
The Diamond Rubber Co.
Enreka Fire Hose Mfg. Co., 54-58 Fremont St., S. F.

Squires & Byrne Co., 565-567 Mission St., S. F.

Bowers Rubber Works, San Francisco

Fire and Police Boats

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Pumps

Geo. E. Dow Pumping Engine Co., S. F. & L. A.

Gasoline Engines

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Hydrants

Water Works Supply Co., Monadnock Bldg., S. F.

Inspections and Tests

Robt. W. Hunt & Co., 418 Montgomery, S. F.

Machine Works

W. T. Garratt & Co., 227-229 Fremont St., S. F.

Municipal Accountant

William Dolge, C. P. A., 311 California St., S. F.

Municipal Castings

Geo. E. Dow Pumping Engine Co., S. F. & L. A.
Pacific Foundry Co., 18th & Harrison, S. F.

Municipal Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.
Roberts & Denicke, 461 Market St., S. F.

Municipal Printers

A. Carlisle & Co., 251-253 Bush St., S. F.

Municipal Water Works

Geo. E. Dow Pumping Engine Co., S. F. & L. A.

Office Furniture

H. S. Crocker Co., 674 Mission St.

Pavement Materials

Barber Asphalt Paving Co., S. F. and L. A.
Warren Brothers Company, Los Angeles, Cal.

Pumping Machinery & Supplies

W. T. Garratt & Co., 277-279 Fremont St., S. F.
Pacific Fire Extinguisher Co., 507 Montgomery St., S. F.

Geo. E. Dow Pumping Engine Co., S. F. & L. A.
Water Works Supply Co., Monadnock Bldg., S. F.

Playground Apparatus

A. L. Young Machinery Co., S. F.

LIST OF RESPONSIBLE FIRMS—Continued**Road Machinery**

The Good Roads Mach'y Co., Ft. Wayne, Ind.
A. L. Young M'chy Co., Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Road Oils

Standard Oil Company

Roofing

Barber Asphalt Paving Co., S. F. and L. A.

Rubber Goods

Squires & Byrne Co., 565-567 Mission St., S. F.
The Diamond Rubber Co.
Bowers Rubber Works, San Francisco

Sanitary Wiping Rags

The Raychester Co., 1448 Folsom St., S. F.

Scrapers

A. L. Young M'chy Co., Fremont St., S. F.

Septic Tanks

Pacific Flush Tank Co., Chicago.

Sewage Pumps

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Sewer (Concrete)

Esterly Con. Co., Inc., 717 Market St., S. F.

Sewer Fittings

Pacific Foundry Co., 18th & Harrison, S. F.
Pacific Flush Tank Co., Chicago.

Sewer Pipe and Terra Cotta

Gladding, McBean & Co., Crocker B'ldg, S. F.
Steiger Terra Cotta Co., Mills B'ldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Sewer Systems

Sloan & Robson, Nevada Bank Bldg., S. F.

Sidewalks (Cement)

Esterly Con. Co., Inc., 717 Market St., S. F.
Steel Protected Concrete Co., Phila., Pa.

Street Signs

A. L. Young Mch. Co., S. F.
California Metal Enameling Co., Bairdstown,
L. A.

Street Sweepers

A. L. Young M'chy Co., Fremont St., S. F.

Water Meters

Water Works Supply Co., Monadnock Bldg.,
S. F.

Water Works Equipment

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Wires

John A. Roebling's Sons Co., S. F.
Water Works Supply Co., Monadnock Bldg.,
S. F.

Valves

Water Works Supply Co., Monadnock Bldg.,
S. F.

Pipes

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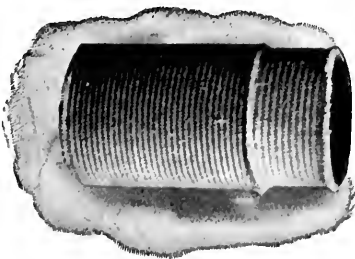
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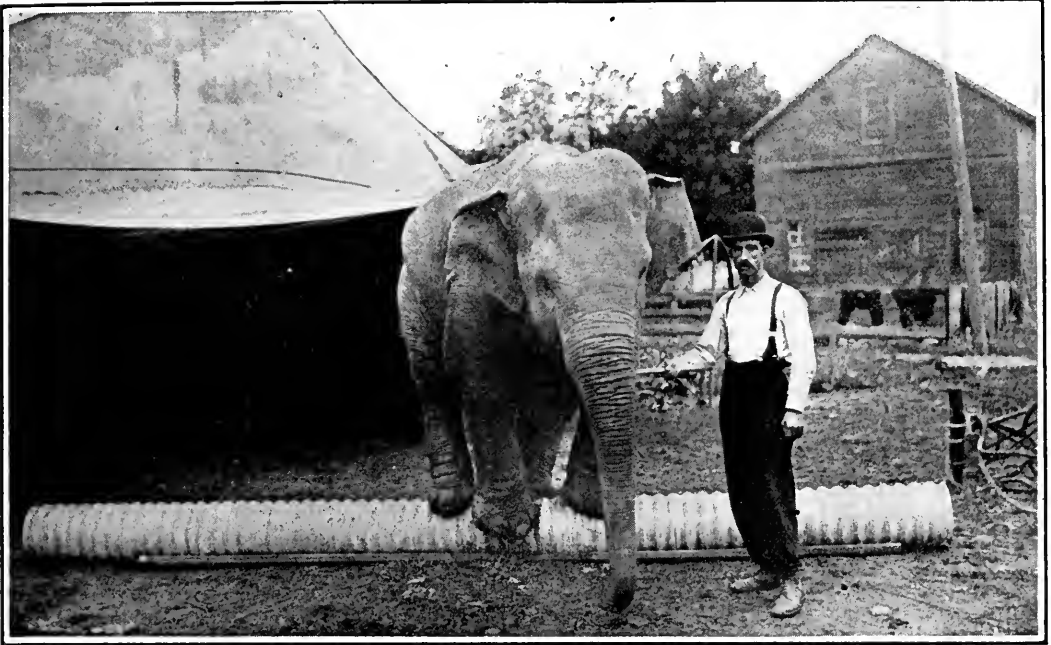
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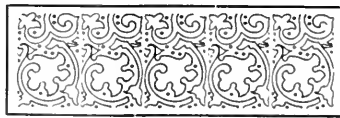
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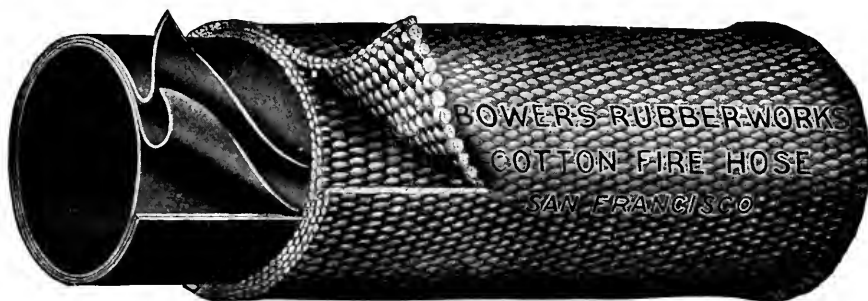
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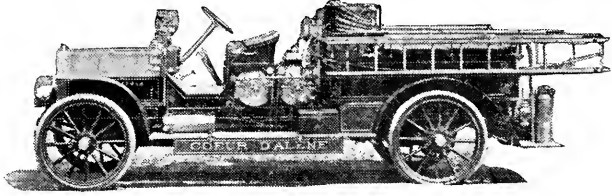
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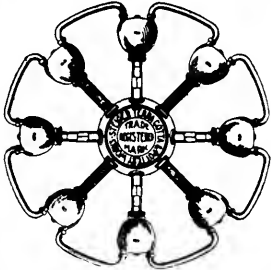
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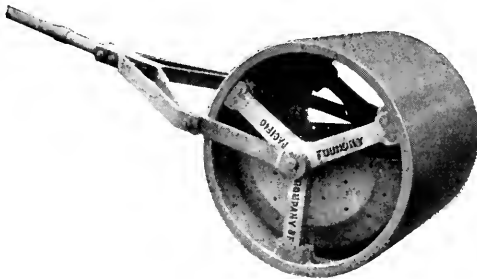
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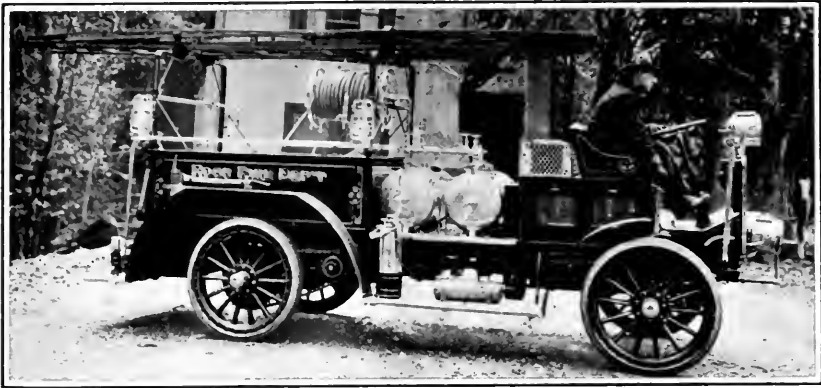
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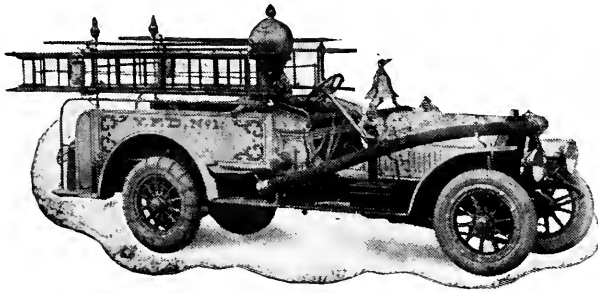
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Auto City Service Ladder Trucks

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THE world-famed Orange Grove Avenue Pasadena Cal. two miles long is being laid with Bithulithic selected by unanimous vote of electing taxpayers after consideration of all kinds of pavement.

Resolution of Intention No. 2957

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Be it resolved by the City Council of the City of Pasadena that Orange Grove Avenue in the City of Pasadena from the center line of Colorado Street to the north line of Columbia Street be graded and paved with Bithulithic pavement on a biturminous base.

BITULITHIC has been adopted for Wilshire Boulevard, the finest boulevard in Los Angeles leading to the Pacific Coast resorts.

WILSHIRE PAVING WAR IS SETTLED BY COUNCIL

Choice of Bithulithic Ends Bitter Contest Among Residents of Fashionable Thoroughfare

After one of the bitterest contests over such a matter that has come before the present Council the latter yesterday passed an ordinance to pave Wilshire Boulevard with Bitulithic paving. For weeks every Council meeting has been attended by scores of interested citizens, urging the Council to take Bitulithic or nothing, the particular paving desired by a majority of the property owners on the street.

The reason for the intense interest of the property owners on the street is found in the fact that the street is one of the finest in the city and that the paving proposed will make it the most expensive, considered as a thoroughfare alone. The social and business prominence of most of the property owners on the boulevard made the discussion between them as to means and methods of importance also.—

Extract from Los Angeles, Cal., Herald, June 28, 1911.



Winter Residence of Adolphus Busch Typical of the Class of Residences on Orange Grove Avenue Pasadena Cal.

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Pacific Coast Offices San Francisco Los Angeles Portland Seattle Spokane and Vancouver

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VOL. XXVI	FOURTEENTH YEAR	No. 1
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EDITORS	H. A. MASON AND WM. J. LOCKE
EDITORIAL OFFICE	NINTH FLOOR, PACIFIC BLD'G. SAN FRANCISCO
PUBLICATION OFFICE.	SANTA CLARA, CALIFORNIA

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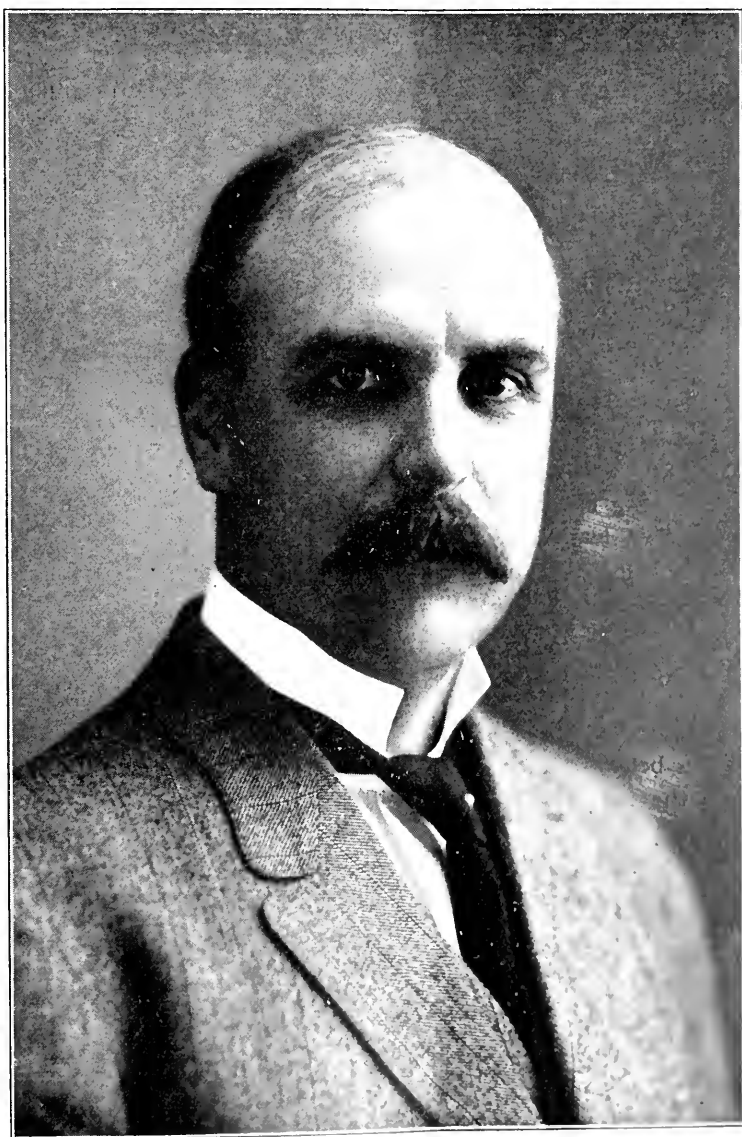
PACIFIC MUNICIPALITIES

A Journal for Progressive Cities

VOL. XXVI

JANUARY 31, 1912

No. 1



JAMES ROLPH JR., MAYOR OF SAN FRANCISCO

THE NEW MAYOR OF SAN FRANCISCO

The people of San Francisco are congratulating themselves on having chosen a man for the office of Mayor who gives promise of "making good" in every sense of the term.

Recognizing the enormous amount of work necessary to be accomplished during the next four years, it was deemed of the utmost importance that the man selected as Chief Executive during this period should be not only a man of ability, but one who possessed the confidence and goodwill of the greatest number of its citizens. By the greatest good fortune the people succeeded in electing just such a man.

James Rolph, Jr., is a native son. He obtained his education in the public schools of the city of which he is now the head. Entering the shipping business shortly after leaving school he assisted in establishing the firm of Hind, Rolph & Co., now one of the largest of its kind in San Francisco. Notwithstanding his business interests, he has managed to devote some of his time to the work of semi-public organizations and has been honored with the presidency of the Merchants' Association of San Francisco, an office which he held with great credit for several terms. He is active also in a number of local civic bodies and improvement organizations.

In all his business affairs he has

never been hostile to the interest of labor, and partly for this reason, it may be said that no man has entered upon the discharge of the duties of this responsible office with the good wishes of such a large number of his fellow citizens.

We believe and sincerely hope that his administration will be noted as one of achievement. The great metropolis of the Pacific Coast has long needed such a man.

The following is a synopsis of the inaugural message of Mayor Rolph, the keynote of which may be said to be "Less talk and more work:"

"The Nation has selected our city as the place for the celebration of the opening of the Panama Canal.

In choosing this as the appropriate place, the Federal Government has thereby signified to the peoples of the world that our City is most directly benefited by this, the mightiest geographical change ever effected by man: that, as far as American Pacific interests are concerned, San Francisco is practically the commercial terminus of the canal.

The world will come and we must be ready. The Exposition must be not merely a conventional success; of it the City must necessarily be the largest part.

The Exposition has united our people, and the spirit of municipal unity is capable of marvels. The people ex-

pect us to make San Francisco greater, better and more beautiful.

That we may achieve our hopes we must proceed systematically from one essential to another. Some sacrifice may be necessary in details to produce concentration on the really great requirements.

The three important measures appealing to immediate attention are: A new City Hall. A public water system, and improved street car transportation.

Visitors receive their impressions of a city largely from its public buildings. These are accepted by mankind as architectural symbols which represent the character of the people and their physical activities and artistic ideals.

It is all important, for the convenient administration of public business, and for the impression which we shall make upon the world, that, **prior to the opening of the Exposition, there shall be completed a City Hall** that shall extend every convenience to the citizen, and, at the same time, be the City's chief architectural adornment. Our first duty is to choose a definite and immediately available site, and to select desirable plans for the building. Thereafter should be submitted to the voters, without delay, a bond issue covering the requirements. The subject of a site has been under discussion for more than six years. It has been made obvious that to secure a new location in the heart of the City by purchase or condemnation would consume years.

The Exposition officials have declared that, if the City will provide a site, **they will erect thereon a great public auditorium**, which shall become the property of the municipality with-

out further expense. This offer should be accepted. Land adjacent to the City Hall, suitable for initiating plans for a Civic Center, should be acquired by purchase or condemnation.

Our City is, to its standing reproach, **one of the few large municipalities not owning and operating its own water service.** Public health, one of the greatest concerns of municipal government, directly rests upon a supply of pure and abundant water. **A city cannot provide its inhabitants with healthful conditions without all the water supply and service being under its exclusive control.** To the extent that a municipality is dependent in this essential it is incapable of performing its chief duty. This condition should be immediately remedied.

Ultimately our water must come from the Lake Eleanor and Hetch Hetchy supply in the Sierras. Nothing that can hasten the bringing of this Sierra water to our inhabitants must be left undone. But, pending their arrival, and preparatory thereto, the entire properties of the Spring Valley system should be acquired. Negotiations should at once be opened with the owners of Spring Valley.

It is to be hoped that the owners of the Spring Valley properties, being largely interested otherwise in San Francisco, and sharing the feelings of other citizens, and imbued with the progressive spirit of San Francisco, will meet us on reasonable terms, and that the City may purchase these properties for a compensation that will be fair to the people.

The inadequacy of our street car system is one of the evils which needs a speedy remedy. A very considerable portion of San Francisco is not within the reach of the present car

service. The eventual remedy for such conditions is municipal ownership of public utilities. But this remedy is not yet available in all instances—existing franchises holding for many years.

The construction and operation of railways by private capital, subject to the right of acquisition by the City on payment of cost and a reasonable bonus, under the Charter provision recently adopted, should be encouraged. The building of the railway by private enterprise, coupled with the power of the City to own and control it when it is ready, offers a partial solution of the street railway problem.

Indeterminate franchises are permissible under our State constitution. It may be reasonably expected that private capital, under a system of indeterminate franchises, will be induced to extend the existing railroads as the public needs require. But, should we be disappointed in this expectation, nothing remains but the building of an adequate system before the opening of the Exposition by the City itself.

To meet probable conditions of the future, the article in the Charter providing that bond issues shall not exceed fifteen per cent. of the assessed valuation of the taxable property should be amended. **There is no sound reason why bond issues for the purchase of utilities that will be at least self-sustaining and, in most instances, profitable, should be included within the fifteen per cent. limit.**

To assure the most successful solution of this and other great problems, we must secure the best talent in scientific and artistic lines wherever it may be found. The principle of encouragement of home industry should have

no application to the employment of expert talent by the City. **The best talent, wherever found, is not too good for San Francisco.** We must open our doors to it instead of closing them. Hence the Charter provision, requiring one year's residence as a qualification for City employment should be amended so as to exclude experts and scientific men from its scope.

We must familiarize ourselves with present financial resources. The facts should be ascertained and made known to the people as soon as known to ourselves. The books of the City should be audited under the direction of the finance committee and the results published without delay.

From these remarks, gentlemen, I would not have the public suppose that the three great problems first presented are the only matters of pressing importance. They are not. Others, vital to the City's welfare, must engage our attention. The reconstruction and cleaning of our streets, improving our park system, increase of playgrounds, the creation of an esplanade along our beach, improved and extended sewer system, the completion of the salt water auxiliary fire system and all other unfinished work; definite action for the building of tunnels, the addition of San Mateo County to San Francisco, and the improvement of all the roads in the outlying sections of San Francisco. All of these require careful study and should be taken up as rapidly as financial power and legislative action will permit. But I believe that every one will concede that the three first mentioned are conspicuous necessities, and are within the range of early accomplishment.

INFORMATION FOR CLERKS AND OTHER OFFICIALS
REGARDING THE APPROACHING ELECTIONS
IN THE CITIES AND TOWNS OF
THE SIXTH CLASS



A **regular municipal election** for cities and towns of the sixth class will be held throughout the State on **Monday, April 8, 1912**, in accordance with the provisions of Section 852 of the Municipal Corporations Bill.

The clerk shall publish a **notice of primary election** to be held on March 12, by one insertion in a newspaper of general circulation in the municipality, any time between the second and twenty-second of February.

(See subdivision 4, section 4, new primary law, Act 1010.)

The holding of a primary election is **not compulsory**, and will not be necessary unless some person insists upon getting on the ballot that way, nevertheless it is mandatory on the clerk to publish a notice which should be substantially as follows:

NOTICE OF PRIMARY ELECTION.

Notice is hereby given that a primary election will be held in the town of ———, on Tuesday, March 12, 1912, for which candidates are to be nominated for the following offices:

- 1—Trustee (full term).
- 2—Trustee (full term).
- 3—Trustee (short term).
- 4—Clerk.
- 5—Treasurer.

(Seal)

JOHN SMITH,
Town Clerk.

It might be well for the clerk to publish an additional notice immediately following the notice of primary election worded substantially as follows:

Special Notice.

A primary election will not be necessary and the expense thereby involved will be saved the city, unless one or more persons insist upon being candidates under the primary law.

Forms for conducting a primary election may be obtained from the Secretary of State.

Saloons must be closed on the day of holding primary election as well as on the day a regular election is held, during the hours the polls are open. (Sees. 63b and 64 1-2 Penal Code.)

The **conduct of municipal election** in cities of the sixth class is governed by the provisions of section 856 of the Municipal Corporations Bill and sections 1044, 1120, 1121, 1133 and 1151 of the Political Code.

The **notice of election** should be published in the manner and form as may be prescribed by ordinance. It should contain the list of the offices for which the election is to be held, the number and location of the election precincts, and the names of the election officers for each. The notice must be published for **at least two successive weeks prior to the election**; this requires the first insertion not later than March 24.

(See Sec. 1142 Pol. C.)

Note:—A good form for notice of election was published in Pacific Municipalities for February, 1910.

Election precincts, if not consolidated, require the appointment of one inspector, one judge, one clerk and one ballot clerk. If **consolidated** as provided in Sec. 1133, Pol. Code, the number of election officers must be doubled. (See Sec. 1151 Pol. Code.)

The **inspector** is the election officer who administers all oaths and who has the power to appoint substitute judges and clerks in case those serving become incapacitated during election.

Nominations other than by conventions may be made in accordance with the requirements of Section 1188 of the Political Code.

Certificates of nomination, equal in number to at least **three per cent.** of the entire vote cast at the last preceding general election must be filed with the clerk in the form and manner required by law. It is advisable for the

clerk to have a sufficient number of blank certificates published for the use of candidates. They should be substantially in the following form:

Certificate of Nomination.

I, the undersigned, an elector of the City of ———, residing therein, hereby nominate ———, who resides on ——— street in said city, for the office of ———.

I hereby certify that I have not been elected as a delegate to any political party convention; that I have not voted at any primary election at which a candidate was nominated for the public office mentioned herein; that I have not joined in any manner in nominating any other candidate or candidates for the same office, or in nominating the same candidate or candidates for the same office under another or different political party name or designation.

In witness whereof, I have hereunto affixed my signature, together with my place of residence and occupation, this — day of —, 19—.

(Signed) ———, residing at Number —, ——— street, this city. Occupation —.

Verification.

——— being duly sworn deposes and says: That he is the signer of the foregoing certificate of nomination and that the same is true. Subscribed and sworn to (Signed) ———, before me this — day of —, 19—.

Notary Public in and for the County of ———, State of California.

Notes:

1—Each certificate must be a separate paper and contain the name of one signer thereto and no more.

2—The number of certificates required must equal three per cent. of the entire vote cast at the last preceding general election.

3—The verification may be made by any officer authorized to take an oath, or by a special verification deputy appointed by the candidate according to the provisions of Section 5 of the primary election law. (See Act 1010.)

4—The certificates must be numbered, fastened together and bound by precincts alphabetically, according to surnames.

(See Sec. 1113 Pol. Code.)

5—The clerk is directed to strike out or disregard any certificate of nomination not properly signed.

The certificates of nomination **shall be** filed with the clerk not earlier than February 18 and not later than March 8 midnight.

(See Sec. 1192 Pol. Code.)

Sample ballots shall be printed under direction of the clerk, on plain white paper without watermark, equal in number to the number of voters. They shall have **printed on the face thereof** the words "**Sample Ballot.**"

(See Section 1210, Pol. Code.)

The clerk **shall commence mailing** the sample ballots to the registered voters **ten days before** election, and he shall have them all mailed **at least five days before election.**

Instruction cards, one for each voter, shall be enclosed and mailed with each sample ballot. They shall contain instructions for guiding the electors in obtaining and marking their ballots, and in addition thereto, they shall have printed thereon Sections 1214 and 1215 of the Pol. Code and Section 61 of the Penal Code.

The clerk shall **furnish each board of election** with **twelve** of the instruction cards also, **one of which** shall be posted in each voting compartment and not less than **three** at other places about the voting booth.

(See Sec. 1210, Pol. Code.)

Note:—It will undoubtedly be economy to procure the necessary number of these "Instruction Cards" from one of the large stationery establishments in San Francisco or Los Angeles, which make a specialty of political printing.

The **ballots** must be procured by the clerk. He must see that they are properly printed in black ink, on tinted paper furnished by the secretary of state, and they must be kept secret by the printer and clerk until the day of election. They shall **not exceed** twenty-four inches in length and each column shall be **four inches in width.** The names shall be printed in alphabetical order.

(See Sec. 1196 Pol. Code for description of ballot.)

The **form of ballot**, with respect to the width of column, location and size of lines, size and kind of type necessary to use, is as follows:

INSTRUCTIONS TO VOTERS

To vote for a candidate of your selection stamp a cross (X) in the voting square next to the right of the name of such candidate. Where two or more candidates for the same office are to be elected, stamp a cross (X) after the names of all the candidates for that office for whom you desire to vote, not to exceed, however, the number of candidates who are to be elected. If the ballot does not contain the names of candidates for all offices for which you may desire to vote, you may vote for candidates for such offices so omitted by writing the name of the candidate for whom you wish to vote in the blank space left for that purpose. To vote for a person not on the ballot write the name of such person under the title of the office in the blank space left for that purpose.

To vote on any question, proposition or constitutional amendment, stamp a cross (X) in the voting square after the word "Yes" or after the word "No". All marks, except the cross (X) are forbidden. All distinguishing marks or erasures are forbidden and make the ballot void.

If you wrongly stamp, tear or deface this ballot, return it to the inspector of election and obtain another.

MUNICIPAL		
TRUSTEE (FULL TERM)		VOTE FOR TWO
JOHN DOE	Independent	
JANE DOE	Independent	
TRUSTEE (SHORT TERM)		VOTE FOR ONE
JOHN SMITH	Independent	
CLERK		VOTE FOR ONE
RICHARD ROE	Independent	
TREASURER		VOTE FOR ONE
HENRY BROWN	Independent	

Notes:

The ballot **should be trimmed** close up to the heavy black line on the left and should have a perforated line on the right and on the top as indicated.

The **number of the ballot** should be printed on the right of the stub immediately above the horizontal perforated line, and again on the back of the ballot immediately inside the vertical perforated line near the top.

On the **back of the ballot** left of the center should be the words, "Municipal Ticket" in eighteen point capitals.

After being printed the ballots **shall be bound** in stub books, each book to consist of **fifteen**, or some multiple of fifteen ballots. The clerk shall keep a record of the number of ballots printed. (Sec. 1198 Pol. Code.)

The board of trustees should meet on the Monday following the election, April 15, and **canvass the returns**. Thereupon they should adopt a resolution reciting the fact that a regular municipal election was held in accordance with the law and the meeting of the trustees as a canvassing board and their findings. It should give the vote cast in each precinct and the number received by each candidate therein, to be followed by the total vote cast in the municipality with the total vote of each candidate, and should conclude with a declaration of the names of those elected. This resolution should be written in full on the minute book.

A **certificate of election** should be issued by the clerk to each of the successful candidates, after the result of the canvass has been officially declared. He should have them take the oath of office and subscribe thereto at the same time. (See Pacific Municipalities for March, 1910, for form of certificate and oath.)

Note:—Blank certificates of election with oath attached may be procured from any of the large stationery houses.

Official bonds must be furnished by the clerk, treasurer and marshal, as required by Section 853 of the Municipal Corporations Bill. They should ascertain beforehand if possible the amount of bond they will be required to give, and be able to present the same for approval on the day they take office. (See Pacific Municipalities for March, 1910, for form of bond and oath.)

As soon as the returns are canvassed and officially declared, and **on the same day, April 15**, the newly-elected officials shall qualify by taking the oath and subscribing thereto, and the trustees shall immediately hold a meeting, choose a president and, should it be a regular meeting, may transact other business, otherwise adjourn.

All candidates, successful or otherwise, must file with the clerk a **statement of their receipts and expenditures**, within **fifteen days** after election day, (that is, on or before April 23rd,) and vouchers must accompany every expenditure of \$500 or more. It is a misdemeanor not to make or file this statement. (See Statutes 1907, Chapter 350.)

Note:—Blank forms for these statements may be procured from any of the large stationery houses. The Certificate of nomination, Instruction Card, Certificate of election, Official bond, Candidates' statement of Receipts and Expenditures, all may be obtained in blank from the large stationery houses in San Francisco and Los Angeles.



THE MIXING OF OIL WITH CEMENT

The Result of Experiments of Logan Walter Page, Director of the Office of Public Roads of the Department of Agriculture.

About a year ago, Logan Walter Page, Director of the Office of Public Roads of the United States Department of Agriculture, found that oil in considerable quantities could be combined with wet Portland cement paste by simply mixing. This suggested to him that there might be some value in such a combination, and he at once began experiments to determine the effect of such a mixture upon the various properties of mortar and concrete. Mr. Page described the tests and the information obtained from them in a paper presented before the American Society of Civil Engineers on November 1 of last year.

By way of experiment, experimental pavements built of concrete containing oil were laid on two bridges at Ridgewood, N. J., in April and May, 1910; upon 400 feet of street surface in May and June of the same year; upon 300 feet of street surface in Wash-

ington, D. C., in the latter month and upon a half mile of road laid in the suburbs of Harrisburg in the summer of 1910, and Mr. Page reports that each of these test pavements was in very good condition at the time of writing the paper. It is not evident, however, just what the advantage of the oil is in concrete pavements.

First the cement and sand were mixed and wet up after the ordinary method of preparing mortar by hand, after which the desired quantity of oil was added and the mortar turned over and over until the oil was thoroughly incorporated with the mortar. After this moistened stone was added and mixed as in ordinary hand mixing of concrete.

As a method of waterproofing concrete, his experiments would indicate that the addition of oil is very successful. A vault 112 feet long and 18

feet wide was built for the United States Treasury Department with concrete in the side walls, containing oil to the amount of ten per cent. of the cement, and a 3-inch covering of the same on top; and although this was subject to a head of 7 feet of water for several months, it showed no signs of leakage. Another treasury vault which had always leaked so as to be useless was made perfectly dry by treatment with oil concrete. Vessels 2 1-2 inches high and 8 inches outside diameter with walls one-half inch thick, made of 1:3 oil cement mortar, when immersed in water remained absolutely dry on the inside at the end of six months; while similar vessels made without the oil became damp inside in one minute and in a few days completely filled with water. For municipal engineers, this subject would appear to be especially interesting in connection with reservoir linings, flush tanks for sewerage systems and similar structures which are intended to be water-tight. Also for pump pits carried below ground water level and similarly submerged structures. An additional demonstration of the impermeability of the oil cement mortar was obtained by placing a specimen 3 inches thick and 6 inches in diameter under a water pressure of 40 pounds per square inch; the specimen remaining perfectly dry for 24 hours, whereas the similar test specimen without the oil leaked 116 cubic centimeters under the same conditions. A one-half inch coat of 1:3 mortar containing 10 per cent. of oil, applied to the surface of a very porous concrete, was absolutely effective in preventing leakage, even under comparatively high pressure. Whether water stored in a reservoir composed of such con-

crete would be rendered unpleasant for public use by the giving up of a portion of the oil by the concrete, was apparently not ascertained, but it does not seem probable that there would be any such effect if the concrete were thoroughly washed off before the reservoir was filled.

The effect upon the physical properties of cement and mortar by the addition of the oil has been under examination by Mr. Page for two years and a number of test pieces are still being kept for the purpose of making various tests upon them at still greater ages. These tests seem to indicate, among other things, that there is no advantage in adding to concrete more than 10 per cent. of oil of the kind used (the amount of oil is expressed in percentage of the amount of cement used). With a different kind of oil or different grade of aggregate somewhat different results might be obtained. The sand used was a river sand with 30 per cent. voids, and the coarse aggregate was 3/4-inch crusher-run gneiss. Three different oils were used. Each of these was a fluid residual oil of a greasy character with a specific gravity at 25 degrees centigrade of 0.910 to 0.926, a loss at 163 degrees in five hours of 6.86, 12.56 and 7.98 per cent. respectively; the residue being fluid and greasy in character. The amount soluble in C S₂ at air temperature was 99.99 per cent. in two cases and 99.93 in the third. There was no inorganic insoluble matter in any of the oils. The fixed carbon amounted to 2.41, 3.36 and 5.11 respectively, and the specific viscosity, Engler 50 degrees centigrade, was 14.2, 6.4 and 18.2, respectively. The percentage of total bitumen insoluble in 86 degrees paraffine naphtha was 2.23, 6.82 and 10.16

per cent. respectively. There seemed to be no difference between the action of these oils in affecting the physical characteristics of the concrete, with one exception: the crushing strength was seriously decreased with the addition of oil up to 10 per cent. in only one case, that of the first-named oil. The only marked difference between this oil and both of the other two, so far as the characteristics named above are concerned, was the last-named characteristic, indicating possibly that the crushing weakness was occasioned by the smaller percentage of bitumen insoluble in naphtha.

As a result of the experiments made the conclusions drawn by Mr. Page, as contained in his paper, were as follows:

The tensile strength of 1:3 oil-mixed mortar differs very little from that of plain mortar, and shows a substantial gain in strength at 28 days and 6 months over that at 7 days.

The times of initial and final set are delayed by the addition of oil, 10 per cent. of oil increasing the time of initial set by 90 per cent., and the time of final set by 60 per cent.

The crushing strength of mortar and concrete is decreased by the addition of oil to the mix, concrete with 10 per cent. of oil having roughly 75 per cent. of the strength of plain concrete at 28 days. At the age of one year the crushing strength of 1:3 mortar suffers but little with the addition of oil in quantities up to 10 per cent.

The toughness or resistance to impact is affected but slightly by the addition of oil in quantities up to about 10 per cent.

The stiffness of oil-mixed concrete appears to differ but little from that of plain concrete.

The results of tests for permanent deformation do not indicate that a law is followed by oil-mixed concrete.

Oil-mixed mortar and concrete, containing 10 per cent. of oil have very little absorption and, under low pressures, both are waterproof.

Oil-mixed mortar containing 10 per cent. of oil is absolutely watertight under pressures as high as 40 pounds per square inch. Tests indicate that oil-mixed mortar is effective as a waterproofing agent when plastered or painted on either side of porous concrete.

Bond tests show the inadvisability of using plain bar reinforcement with oil-concrete mixtures. With deformed bars the bond is not weakened seriously by the addition of oil in quantities up to 10 per cent.

A patent has been taken out by Mr. Page for the mixing of oil with Portland cement, concrete and hydraulic cements giving an alkaline reaction, but this has been done only to prevent others from monopolizing or charging a royalty for the process, as he announces that all United States citizens are at liberty to use it without the payment of royalties.



CALIFORNIA STATE HIGHWAYS

The State of California is preparing to expend Eighteen Million Dollars (\$18,000,000) on highways, bridges and culverts.

As these roads will gridiron the whole State, different conditions will have to be met in the different localities. It is therefore not advisable to lay down rigid rules to be followed in the making of specifications and in construction, but take each road in its separate locality and study the natural conditions there and build the road accordingly.

The roads will naturally divide themselves into several classes according to their commercial importance and the amount of travel they are destined to stand.

As first-class roads must be considered those which connect inland commercial centers with harbor towns and main roads leading out of the State connecting with roads of the same kind in neighboring states to which may be added roads which will be heavily travelled by automobiles for the sake of their scenic beauty.

This class of roads will naturally receive more care and attention in their design and construction than any other class and the choice of material and method is of the utmost importance.

The body of the roadbed will have to be built of crushed rock (quarry rock), crushed boulders or screened gravel according to locality and in the choice of this rock more care should be exercised than has heretofore been the case in our road work here in California, where no distinction has been made between rock good and suitable

for roadwork and rock good for hydraulic concrete.

As a matter of fact rock that is suitable for hydraulic concrete does often contain ingredients which will prove detrimental to the road surface when the rock is used for road work. When suitable rock, boulders or gravel has been located the next question that presents itself is the question of a material for binding the rock together in the road surface, whether it be done by the mixing or the penetration process.

In considering this question it will be well to look around and see what we can learn from actual experience with different classes of binders and different methods of application.

We have here in California, especially in the southern part, a considerable mileage of so-called oiled macadam and here in Los Angeles County we have oiled macadam with a vengeance.

Oiled macadam consists of several courses of crushed rock of varying sizes bound together—by the penetration method—with crude oil with more or less asphaltic base, up toward 80 per cent., the rest of the oil is made up of oils that are not only detrimental to the binding qualities of the asphaltic base but to the rock as well.

Oiled macadam has been used extensively in the smaller towns in Southern California and especially around Los Angeles, where also the County Good Roads some 300 miles have been and are being constructed by this method.

Oiled macadam is claimed by its fathers to be the ideal pavement,

"smooth as glass," some of them say, "and cheap, too," they add, when as a matter of fact the only oiled macadam ever subjected to a heavy automobile traffic—that is the Los Angeles County Good Roads—were far from cheap and rapidly deteriorating and in need of repairs when not a year old.

Of other road surfaces which have been laid in different parts of the State we have the Asphaltic Concrete, which in reality is an attempt to construct a bitulithic pavement by the hit and miss method, cheapening it by not accurately mixing the ingredients in the bitulithic.

Asphaltic Concrete consists of crushed rock and sand in almost even proportions, bound together with about six per cent. of Asphalt heated and mixed at a plant, conveyed to the street or road hot and rolled while hot, first by a hand roller, followed later by a heavy steam roller.

Of the bitulithic road surface which must be said to be the road surface laid according to the most scientific principles and giving the most practical and lasting results we have so far but very little here in California.

Hermosa Beach has in Manhattan Avenue the first two miles of bitulithic ever laid in California and Pasadena comes next with Orange Grove Avenue recently finished, Los Angeles

bringing up the rear with the contract for Wilshire Boulevard just let for bitulithic.

Manhattan Avenue in Hermosa Beach was not cold before it was subjected to the most severe test that can be imagined for a new pavement; the Standard Oil Company had just commenced construction of its new refinery at El Segundo and had no railroad into its site yet, so all the lumber for the houses and fences, which ran up into millions of feet, had to be transported by wagon from the lumber yards in Redondo and it all went over Manhattan Avenue, and today there is not a sign of any effect on the surface of the road of this test.

We have here in Hermosa Beach at the present writing about 200,000 square yards of Asphaltic Concrete and Bitulithic Pavement, all of which has been installed under the writer's supervision during the last three years and all of which is giving excellent service, in fact so satisfactory have these pavements proved to the population and property owners that the Engineering Department is working over time keeping up with the petitions for new work that are steadily and unresistably pouring in from all over the city.

GEORGE NELSON,
City Engineer, City of Hermosa Beach,
California.

San Francisco's Board of Supervisors have adopted a resolution in favor of constructing a new city hall on the site of the old one. The same resolution declares also in favor of a Civic Center in conjunction with the city hall and advocates the acquisition of additional lands lying within the district bounded by Van Ness Avenue, Hayes street, Market street and Golden Gate Avenue.

Oroville's sewer system is almost completed. Despite the fact that the company having the contract, the Contra Costa Construction Company, met unexpected difficulties in excavation which will entail a loss estimated at not less than \$15,000, they have stood faithfully by their contract and are performing it to the letter.

CLEANLINESS, HEALTH AND GODLINESS

EDITOR'S NOTE: The following is a paper which was prepared for submission to the Public Health Conferences recently held at Santa Barbara, by Montrose K. Newman, representing the West Disinfecting Company of New York, which had an exhibit at the League of California Municipalities.

"In view of the fact that considerable mortality is caused by preventable disease, and that preventable or infectious diseases are conveyed to a great extent through the medium of filth, it would seem that the question of educating the people as to the best methods of protecting life, and the importance of laws governing sanitary conditions would receive the earnest attention of the Federal Government.

"A department for the inspection of livestock, known as the Bureau of Animal Industry, is ably carrying on the work of exterminating preventable disease and educating all interested as to the best methods to be employed in safeguarding the health of cattle. This is as it should be, and the work along these lines is being fully appreciated.

"But why the lower order of animals should receive the attention and protection of a fully organized department, consisting of efficient and expert men, and the matter of the protection of human life receive little or, at the best, sporadic attention is a question which requires no answer—but concerted action.

"For the past two years I have had the opportunity of visiting all the large cities, as well as the smaller communities in the states of Washington, Idaho, Oregon and California, and, although the factor of commercialism enters largely into my work, in fact, enables me to carry it on, I am primarily interested in the subject of Sanitary Science, and believe that if there

were universal cleanliness, Godliness would be likewise universal.

"I shall endeavor to set forth in a general way conditions as I have found them on my travels, and if should impart, accidentally or otherwise, information, and point out grave errors to those who are qualified to correct them through Education and Legislation, my work will not be in vain.

"I will first take up the question of the Health Officer in the larger cities. The physician is too often governed by politics rather than efficiency; right here I may state that it is not strange that laymen generally do not give the question of health matters the consideration they deserve when the position of the man who should know, is not respected because of its importance. The larger cities have done a great deal to bring about Health Legislation, but too often ordinances that have been passed through the efforts of a Board of Health become dead issues. It appears like the case of the little boy crying for his base-ball at bed time and his request is granted so that he will cease his noise and sleep. I stated that politics entered too largely into these matters, and while the Health Officer in many cases is thoroughly conscientious and able, he is too often hampered by those who, through lack of education or thought, do not realize the importance of his work.

"It would seem that where the

question of health enters, there should be only one road, and that one straight to the front, and the moment the Federal Government shall take up the reins, the people (if for no other reason than respect for a National issue) will give the question of sanitation in their respective communities serious attention.

"The foregoing is in no way intended as a reflection on the work of the various State Boards of Health. They are doing grand work, but they are likewise handicapped because the political element that deem such issues as Health matters of minor importance, block the road by curtailing their finances. This may all be obviated through the medium of education. Most of us appreciate the importance of a subject we understand, and Uncle Sam can bring about this educational campaign and the State Boards of Health will come into their own, likewise the people.

"Of course, when the question of a National Department of Health was agitated, the cry went up, 'The doctors are grafters.' I presume that if through a National Department of Health disease was lessened, which would mean the reduction of taxes, the Medico would be a grafter. Think it over.

"Now the question of Health Officer in the smaller communities in most instances is not even dignified by political attention. It is a position in name only. The State Health Board requires it, and so, in order that the municipal ship may get a clearance for a full crew, the Health Officer is taken aboard with instructions not to 'get fresh.' I cannot understand why professional men allow themselves to be appointed as Health Officers and

countenance such a farce. In some instances, after looking over local conditions, I have discussed the lack of sanitary measures and restrictions with the Health Officer, and although in every case they admitted the errors, the explanation would be—'I can't get the support of the Council,'—or, 'They only pay me \$10.00 per month, and I can't afford the time.' Well,—the Council excuse might carry some weight, the \$10.00 excuse—the old almanac would, in my estimation, be a better medical adviser than the man who sells his sheep skin for a paltry sum and an excuse. If he cannot carry on the work, let him resign and it will not be long before the Council come to their senses.

"Too often we have the pleasure of meeting the individual who with great pride tells us how he has violated every law of nature and is still kicking, and he can see no reason why the rest of the folks can't take the same chance. This type of man on a City Council, together with a Health Officer that is inactive, do not make for a healthy community.

"The question of sewage disposal in some of the smaller communities is on the "befoh the war" principle. I have visited towns where instead of septic tanks, they had what might be termed settling tanks and the overflow was used for irrigating land on which cattle grazed.

"Another matter which comes under the jurisdiction of the Health Officer is the one of fumigation in cases of contagious diseases. In very few places outside of the larger cities has the subject been properly handled. It has been mostly on the 'hit and miss' plan. In some cases the citizens were allowed to do their own fumigat-

ing and in other cases it was attended to through the medium of someone who had the time, but the question of knowledge was not essential. The method of procedure in instances of this kind was to purchase some formaldehyde or sulphur and proceed to create an odor. The question of the quantity of material to be used, with relation to the cubic air space to be treated, was an unthought of problem. This system might be termed 'Suggestive Therapeutics.' It would be possible for me to continue along these lines indefinitely, citing cases where either through gross carelessness or ignorance matters that should be given serious attention were utterly neglected.

"The subject of Sanitary Science in the schools, in both large and small communities is not receiving the consideration to which it is entitled, and which, eventually, will be compulsory through proper legislation. However, there is, fortunately, an improvement in the school situation as compared to the Health Officer problem, but there is still a great deal to be desired and accomplished. The progress of Sanitary Science depends primarily on the education of the people, and by making the proper start now in our schools we are laying the foundation for a world-wide sanitary campaign.

"Though I have stated that, fortunately, there is an improvement in the handling of school sanitation, at the same time even in this department we find the game of politics being played. We find men appointed to serve as school trustees who, without doubt, are entirely out of their element, and, in many cases, retard the progress of their respective schools. One fact is certain—educational work is entirely

superficial unless founded on a clean and healthy foundation. We know just what to expect from an adult who is in ill health.—What about the child?

"Many school boards are alive to the fact that attention must be paid to the sanitary and environmental conditions of their schools, in fact spend considerable monies for materials and appliances. But right here is where we strike the weak spot.

"The School Board is, as a rule, comprised of men whose time is entirely taken up by their own affairs, and they look to the Superintendent or Principal, as the case may be, to give his attention to all matters pertaining to the school. When it comes to the question of keeping the school premises in a healthful condition (and this is just as important, and should be part of the curriculum) the 'job' finally reaches the janitor.

"The position of school janitor, like the health officer's, is filled (that is all. The question of efficiency is entirely overlooked, although the janitor's position is as important as that of the teacher, and should be recognized accordingly. We all know that if a man were to be employed to fill a janitor's position, for example, in an office building, he would be required to fully understand his work and no excuses accepted. When it comes to the matter of a school—why, in many cases, it has even become a position of charity. A very questionable charity in most instances. The condition of some schools which I have visited was outrageous, and in calling attention to the fact, I have been answered with the excuse, 'The principal is probably very busy, and the janitor is really not capable,' or some other equally poor excuse.

"Why not standardize the work required of a school janitor? Require men who fill this position to pass an examination and pay them accordingly. Even from an economic standpoint this system will pay, and the following should prove a good argument for the hard-headed business man: CLEAN SCHOOLS—LESS SICKNESS—GREATER ATTENDANCE—MORE REVENUE. Although I do not believe that we should even require this argument, provided a little serious thought were given the subject.

"Of course, the proper man as Health Officer in a community will tend to improve conditions in the schools, but the only practical way to solve the problem will be State supervision by the State Board of Health, backed up by a Federal Department of Health. An arrangement of this kind would do a great deal to over-

come the harm that is done by school trustees who do not give the question of Sanitary Science and its full meaning in the schools proper thought.

"I visited a school district and after inspecting the schools and reporting on the existing conditions—which were extremely bad—to one of the trustees, his answer was: 'I don't believe in all this here nonsense about germs. When I went to school we got along all right without all this bother, and there is no sense in it anyhow.' Conclusive.

"In my opinion, one of the great gains to be derived from Equal Suffrage for women, will be their participation in matters pertaining to civic health. They are natural sanitarians and fully appreciate the good work to be accomplished in bettering health conditions. Wherever I have found a woman acting as a school trustee—there I have found a clean school."



PROPOSITION TO HOLD AN EARLY MEETING

Mr. C. H. Rieber, Dean of the Summer Session, University of California, has suggested that if possible the League hold its annual meeting this year during the Summer Session of 1912. Each year the University has a number of representative men of science from the East and from Europe and this year there will be several lectures upon a number of topics of vital interest to the league. The Summer Session closes, however, on August 3rd, which will necessitate a

meeting much earlier than usual.

There is no good reason why the League should not meet earlier and hear these learned men. We would undoubtedly learn something new and something worth while. New trustees will be elected in April in all the cities of the sixth class and an early session may be of some advantage to them. The proposition has been referred to the members of the Executive Committee for decision; in the meantime the views of other members are earnestly solicited.

MUNICIPAL DATA AND RECORDS

Doing work is of more importance than keeping records of it," is a remark often made.

That is the truth, but by no means the whole truth.

Doing work wrong is worse than not doing it at all—inefficiency and reconstruction are both mighty expensive.

Doing work in the best way is more important than merely doing it, whether it be construction work or running a municipal department.

The best can be known only by comparison. Your way may be pretty good, but how do you know the other fellow's isn't better?

Comparison requires definite facts

and figures concerning the things compared; that is, records and data.

So records are essential to comparison, which is essential to the best conduct of work, which is more important than doing work any old way—which is the way too much municipal work is done.

Perhaps after all your way is the best way, but how are you going to prove it? Perhaps you cleaned streets more economically last year than they were ever cleaned before. But you cannot prove it; you cannot even know it. There are no data by which it can be learned. But once prove it, and a saving of millions to the cities of the country is possible.



ITEMS OF INTEREST

Corporations Must Obtain Franchises.

City Attorney Long holds in an opinion rendered recently, that the relative rights of a city and public service corporations in the public streets have been placed upon an entirely new basis by the adoption on October 10, 1911, of the amendment to the Constitution designed to give the Legislative body control over corporations desiring to supply light, heat or power to the inhabitants of any city. He states that the right heretofore held by corporations of using the public streets without the obtaining of a franchise no longer exists, except

as to systems of distribution already established, and in these cases permits of no extensions thereof without the obtaining of a franchise. The opinion was called forth by questions as to the rights of the Sierra and San Francisco Power Company.

Training Men to Become Municipal Experts.

Through the initiative and generosity of Mrs. E. H. Harriman a number of public-spirited individuals have provided a fund of \$40,000 a year for five years to maintain an experimental school for the study and administra-

tion of public business. The school will be started in New York City, but its scope will be national.

The first step taken has been an arrangement with the New York Bureau of Municipal Research to afford practical training to a certain number of men who are qualified and desirous of fitting themselves for public service.

The bureau will afford these men an opportunity for the study of municipal administration on its practical and business side, such as the administration of departments, the analysis of public expenditure, and from this initial beginning the establishment of a training school for public service will be developed along such practical lines as experience may indicate.

The training itself will be in doing governmental work that needs to be done, and in seeking facts about methods and results of government work.—*The Outlook.*

Co-operative Stores Planned by City Fathers.

PORTLAND, Dec. 15.—Co-operative grocery stores on substantially the Rochdale plan will be established here by a committee of business men, to be appointed by Mayor Rushlight. This plan of combating the high cost of living was brought to the attention of the City Council and Mayor by a committee of business men, who asked that the council empower the Mayor to select a committee to establish the stores. This committee will handle the affairs of the corporation until it is solidly established and permanent officers elected.

Shares in the venture will be sold at \$25, and only one share can be held

by any one individual. Profits will revert to the stores' customers in proportion to the amount of their purchases. According to its promoters the stores will be extended throughout the state if the scheme proves successful in Portland.

Board of Health to Placard City.

Alameda is about to employ a unique plan to raise the standard of cleanliness in residences and business houses. In future the sanitary condition of the various premises is to be shown by placard bearing the inscriptions "clean," "dirty" or "filthy." Those places which do not satisfy the Board of Health will be placarded as dirty or filthy until they comply with the demands of the authorities. This action was decided upon at the last meeting of the Board of Health, which appointed a committee to post the placards and to care for the general health of the city. The Board of Health intends to inspect not only the business houses, but also the private residences of the city and to affix the placards to every house in the city. Those residences which can be designated as "clean" will not be placarded, but those in which sanitary conditions are disregarded will be designated as "dirty" or "filthy" until the house owners remedy the conditions, upon which the placards will be removed. As the Board of Health has arbitrary powers under the city charter, the placards must remain on the houses or places of business until the Board is satisfied that the conditions therein are sanitary. If any householder tears down the placards, the extreme penalty of the law can be enforced.



Q When a man feels the necessity of being in two places at the same time he goes to the nearest telephone and sends his voice. It is not exactly the same thing but when a man talks hundreds of miles in opposite directions from the same Bell Telephone, it is about as good. In the daily use of the telephone a man travels all over town by wire in a few minutes. It is just as easy to travel all over the state and other states by means of the universal Long Distance Service of the Bell System.



The Pacific Telephone & Tel. Co.

Every Bell Telephone is the Center of the System



QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry.

Q.—The gas in our town is of a very poor quality and if possible, I would like to know how this is regulated in other cities.

Ans.—You may pass an ordinance defining the quality of gas which shall be furnished in your town. There is no reason why you should not have the same standard as they have in San Francisco, which requires that the minimum quality of illuminating power shall be 19 candles, determined by actual test, and the minimum heat value 600 British Thermal Units. You

may add a penal clause to the ordinance.

You might secure samples of the gas and have them examined and tested by the State University or the Board of Public Works of San Francisco; the latter body would probably attend to the matter for the actual cost of making the test.

Q.—Would you kindly inform me as to whether it is within your knowledge, that any California city has successfully put in

force the provisions of Section 56, of the Vrooman Act, as amended March 18, 1909.

Ans.—We do not know of any municipality having made use of Section 56 of the Vrooman Act. The attorneys who framed the Improvement Act of 1911 were inclined to question the validity of this Section, but no authorities were presented to uphold this view.

Having made some little investigation since we are inclined to think that the provisions of this section are valid, and in support of our opinion we herewith submit the following authorities:

"It is the generally accepted rule that a municipality in the exercise of its police power may order a lot owner to lay a sidewalk in front of his property, and upon his default may construct the same and charge the ex-

pense to him."—28 Cyc. 962, Lincoln vs. Janesch, 63 Neb. 707, 89 N. W. 280. Pittsburg vs. Daly, 5 Pa. Super. Ct. 528.

"West Virginia, 1894 Code, C 47, Sec. 34, authorizing the council of a city, where the lot owner fails or refuses to construct or repair his sidewalk, but causes the same to be done at the expense of the city, to assess the amount of such expense on such owner, is within the police power, and is valid.—Wilson vs. Town of Philippi, 39 W. Va. 75, 19 S. E. 553."

Q.—The water company supplying this town was granted a permit or franchise in the year 1897 upon a motion recorded in the minutes of November 1st, 1897.

Now, what is the life of such permit or franchise? Is it terminable at the pleasure of the Board by resolution or motion? We find that the water company neglects to re-

Wainwright Galvanized Steel Corner Bar

For Protecting Edges of Concrete Curbs, Steps, Columns, Etc.

This bar is Self Anchoring, the Dovetailed Web holding it firmly in place Every Inch of its Length, requiring no hooks, clips, bolts or wires at intervals allowing buckling or expansion, resulting in loosening of other devices.

IT HAS A RECORD OF TEN YEARS' USE WITHOUT FAILURE

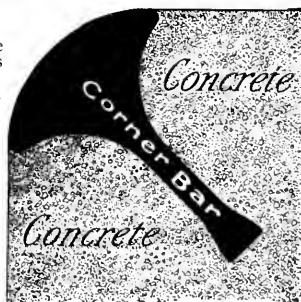
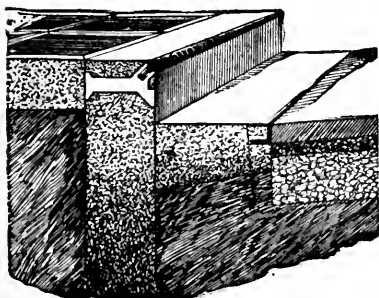
This bar is the main feature of the

WAINWRIGHT STEEL-BOUND CONCRETE CURB

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**THE BEST IN THE WORLD
OVER FOUR MILLION FEET**

In use in more than three hundred cities in the United States



Absolutely Non-Breakable

Cheaper Than Granite

GALVANIZED STEEL CORNER BAR Prevents Chipping or Breaking on Edges.

This Curb is Mechanically Perfect and Unequaled for Curved Corners.

THIS CURB WILL STAND HARDER USE AND LAST TEN TIMES AS LONG AS PLAIN CONCRETE CURBING.

Contractors can make money by laying this curb.

City Engineers can save money by specifying it.

Architects are invited to read pages 242 and 243 "Sweet's Index."

Metal Parts for Sale. Send for Copyrighted Booklet No. 19.

Pacific Coast Representatives:

Seattle, P. W. Smith, 1900 Fourth Ave., North
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PHILADELPHIA, PA.**

pair leaks in the pipes in the streets when notified. How can we enforce such action?

Ans.—The purported permit or franchise granted to the company did not amount to anything, for the reason that the company had the right to dig up the streets, lay pipes and supply the town with water without requiring a permit or franchise of any kind. This right was granted by virtue of Article XI, Section 19 of the Constitution, under the provisions of which the town had the right to prescribe the penalty for damages or indemnity for damages; also the right to fix the charges, that is, the water rates.

If the company neglects or refuses to repair leaks in the streets after having been notified, you may assess the damage incurred to the street and withhold the amount thereof from any water bills owing by the town; or you may bring suit for the amount.

On Oct. 10, 1911, this section of the Constitution above referred to was amended so as to give a municipality the right to condemn and purchase an existing plant or construct a new one, and if the company persists in ignoring the rights of the town, we are inclined to think that your only recourse is to take action along these lines.

Q.—Can a city of the sixth class purchase a road grader costing more than \$100 without first advertising for bids?

Ans.—You cannot lawfully purchase a road grader costing more than \$100 without advertising for bids, as it would be contrary to the provisions of Section 874 of the Municipal Corporations Bill governing cities of the sixth class, which says, that in furnishing supplies for all street and sewer work, when the expenditure will exceed \$100 same shall be let to the lowest responsible bidder, etc.

Q.—How long is it necessary to advertise in case of advertising for bids for fire hydrants and installing the same in case of only having a weekly paper?

Ans.—You may purchase fire hydrants in the open market without advertising for bids at all. They are not supplies of the kind referred to in Section 874 of the Municipal Corporations Bill.

Q.—Will ask your opinion as to the amount, if any, that our marshal may now receive in fees. The section of our ordinance regulating his salary, etc., is as follows:

"The Town Marshal shall perform each and every duty imposed and required by law, and shall receive such compensation for his services as is mandatory under the law in cases made and provided and shall receive an additional compensation for all services performed, or required of him, the sum of \$15.00 per month payable at the end of each and every month."

As the fees for constable in criminal cases were done away with we would like to know what section governs in this case.

Ans.—In our opinion the compensation to which your marshal is entitled is his stated salary of \$15.00 per month only, as provided in your ordinances.

He is no longer entitled to fees in criminal cases. The general law (Section 880 of the Municipal Corporations Bill) says he shall "receive the same fees as constable," therefore the law which abolished the fees for constable deprived the marshal of his right to such fees. Of course he may continue to collect fees in civil cases in accordance with the provisions of Section 4300d of the Political Code.

Would say that you might appoint the marshal to some additional minor office such as poundman, health inspector, building inspector, etc., etc., with nominal duties, and fix the compensation in an amount sufficient to

reimburse him for the fees which he lost by reason of the change in the law.

Q.—Is a Philippine or a Cuban soldier exempt from the payment of peddler's license in California? If so, please refer to law.

Ans.—Section 3366 of the Political Code says: "Every honorably discharged soldier, sailor or marine of the United States who is unable to obtain a livelihood by manual labor, shall have the right to hawk, peddle or vend any goods, wares or merchandise, except intoxicating liquors, without the payment of a license fee.

Q.—An interesting question has arisen in our little city concerning the right of the Board of Trustees to authorize the issuance of warrants when at the time there was no money in the Treasury to pay them. The local bank took them up at a low rate of interest. At no time did the amount of the warrants issued exceed the revenue of any one year. At the end of each fiscal year we always have several thousand dollars on hand, over and above all obligations.

This has been caused by the amount of street work which has been done, and the consequent heavy expense at one time, before taxes were collected, and between tax collecting times.

Ans.—In strict compliance with the law the trustees would not be authorized to issue the warrants unless the money was available to pay them. However, it might be just as well to look upon this provision of the law (Sec. 865) as directory more than mandatory, for we believe it is the general custom to issue the warrants, if it is known the money will be available in the near future, particularly in cases where it would work a hardship to withhold their issuance. They are often cashed in the manner you refer to.

Q.—We have a General Merchandise Store here, and the owners are running a meat market in connection with it. Are we en-

titled to two separate licenses from them, one for the meat market and another for general merchandise store?

Ans.—Yes. According to Bouvier's Law Dictionary, the word "merchandise" is defined to include "dry goods, hardware, groceries, drugs, etc., and is usually applied to personal chattels only, and to those which are not required for food or immediate support." The case might be affected somewhat by the manner in which the stores are handled. If the meat market was actually located in, and was a part of the general merchandise store and advertised and sold as general merchandise, it might not be unreasonable to concede his point. But we do not suppose for a moment that such is the case.

If the meat market is advertised and conducted separately, it is undoubtedly liable for a separate license as a distinctly different business.

"A license to pursue a given occupation does not confer the right to pursue another distinctly different one."—(Vol. 25 Cyp. of Law, page 624, and the cases there referred to.)

"A person conducting in one building the three branches of dry goods, boots and shoes and millinery is liable for the taxes on each."—(Kelly vs. the City of Atlanta, vol. 69, Georgia Reports, page 583.)



FOR SALE.—Having recently installed a new motor driven chemical and hose wagon, the City of Hanford now offers for sale at a very reasonable price, one horse drawn combination chemical and hose wagon, built by the Robinson Mfg. Co., of St. Louis, Mo., having hose capacity of 1500 feet and two 35-gallon chemical tanks. Wagon is fully equipped and in perfect condition. One span of sorrel horses, coming 6 and 7 years old, weight 2900 pounds. Thoroughly broken for fire service.

D. C. WILLIAMS,
City Clerk.

What the Cities are Doing

Vacaville is building sidewalks.

Napa is after some more fire hose.

Oxnard is advertising for more fire hose.

Covina has voted \$70,000 bonds for a sewer system.

Sebastopol has installed a Gamewell Fire Alarm System.

Los Gatos is about to have considerable street paving done.

Palo Alto citizens are talking of annexing more outlying territory.

Healdsburg is looking around for a chance to invest its surplus funds.

Petaluma firemen are planning the purchase of an auto chemical engine.

Stockton's commissioners have been urged to establish a municipal dance hall.

Fortuna is considering a bond issue for the construction of a sewer system.

Oakland is about to establish a municipal wood yard for the benefit of the unemployed.

Venice is constructing a new brick fire house which is estimated will cost over \$2300.

Santa Ana trustees have appointed a committee to put up some additional street signs.

Vallejo's municipal water plant paid \$62,000 into the city coffers last year, in dividends.

Santa Barbara has been threatened with a recall election because of the mayor's choice of a city engineer.

Palo Alto has a civic study class. They have been investigating the commission form of government.

Colton had a recall election recently. The citizen elected as a substitute for the trustee recalled secured a less number of votes than his predecessor obtained when elected to office. The recall provision will have to be amended.

Winton is the name of a model town now being established near Merced by a colonizing company.

Hanford has an anti-soot ordinance aimed at owners and operators of ovens, furnaces and other fire places.

Glroy is about to start the construction of a new High School building to be made of brick and frame.

San Francisco has purchased a Seagrave Motor Driven City Service Hook and Ladder Truck of 80 horsepower.

Fairfield trustees have granted a spur track franchise in face of a strong protest, and the referendum may be used.

Ontario citizens are advocating the installation of a fire alarm system. The council is discussing some extensive street paving.

Auburn trustees have decided to hold a special election on bonding the town for new septic tanks and an extension of the sewer system.

Winters' new sewer system is about completed. This is the first town to install an Inhoff tank and its operations will be eagerly watched.

Pasadena and Alhambra are considering the joint construction of an outfall sewer to serve both towns. A garbage incinerator is also proposed.

Pasadena has purchased a Gorham Motor Driven Gasoline Pumping Engine, and one Seagrave 80 horsepower Combination Chemical Engine and Hose Wagon.

Huntington Beach citizens, in mass meeting assembled, have petitioned for a \$75,000 bond election to determine the proposition for constructing a reinforced concrete pier.

Cloverdale is making a success of municipal ownership of waterworks, having a net cash profit for the year just closed of \$1366.55. During the past six years the town has netted a cash profit of \$9135.24.

Oakland and Alameda will be connected by a tunnel under the estuary before long. The county supervisors have appropriated \$3500 for the preliminary work including geological examinations, maps and surveys.

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

Write for Catalogs. Mention Pacific Municipalities When Writing

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S. F.

Asphalt Machinery

A. L. Young M'chy Co. 26-28 Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Arch. Terra Cotta

Gladding, McBean & Co., Crocker Bldg, S. F.
Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.
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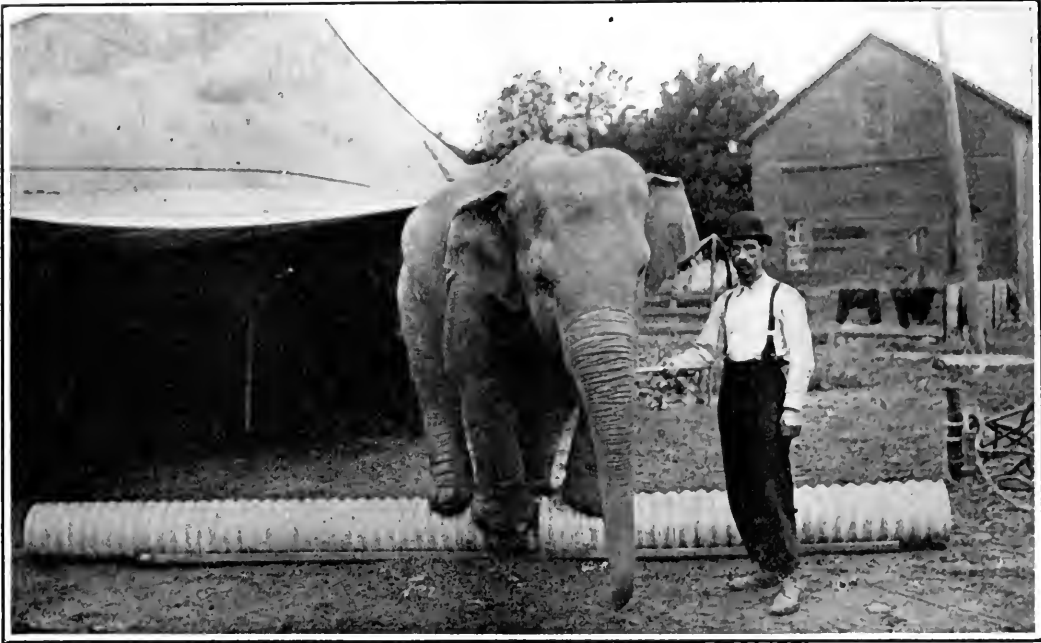
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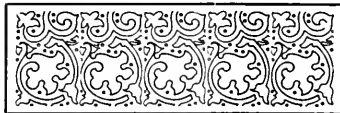
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The Barber Asphalt Paving Company

Philadelphia New York Chicago San Francisco Los Angeles

Extract from the San Bernardino Daily Sun, Tuesday, January 9, 1912

CITY ACCEPTS NEW PUMPING PLANT

*Perris Well No. One Now
Is Ready for Duty,
Machinery Being
Perfect*

Last night the Board of Water Commissioners formally accepted the motor and pumps installed by the George E. Dow Pumping Engine Company, of San Francisco and Los Angeles, for Well No. 1, at the Perris Hill reservoir tract, the report of Engineer W. L. Brown, who represented the commission, showing that in every particular the machinery was up to all contract specifications, the company having made good in every detail of the undertaking, and having the best of the official test in the showing made on cost of operation, which was well within the contract guarantee.

The report of Engineer Brown follows:

To the Hon. Board of Water Commissioners of the city of San Bernardino:

Gentlemen: At the request and under instructions of the Superintendent, I represented your Commission at the

test runs made by the new motor and pump installations recently completed by the George E. Dow Pumping Engine Company of San Francisco and Los Angeles, at Perris Heights wells.

A twenty-four hour run was made and all necessary measurements of power consumed, flow, pressures, etc., were taken.

The water from the vertical pumps in wells was measured over a sixty-inch iron plate weir, while the discharge from the two-stage pumps from the weir box was measured over a sixty-inch wooden weir.

The reservoir on Perris Heights not yet being completed, the gate beyond the two-stage pump was closed until the pressure gauge read sixty-eight pounds, or until the pressure was equivalent to 156.5 feet,—a trifle more than the elevation of reservoir above pumps.

A Bit of Record.

Power was turned on at 10:20 a. m., January 2, 1912, and the following data recorded:

Total water delivered by vertical pump in 24 hours from Well No. 1, 1,966,200 gallons.

Total lift in feet 72.5.

Total water delivered by two-stage pump in 24 hours, 1,950,898 gallons.

Total lift in feet, 156.5.

Total power consumed by both pumps in 24 hours, 2345.49 KW.

Average per hour for run, 97.73 KW.

Or, combining both pumps, we get 1360.05 gallons per minute, the equivalent of 151.1 miner's inches of water elevated 229 feet at a cost of \$1.446 per hour for power.

Throughout the entire run all moving parts and bearings ran true and cool. No defects in either material or workmanship were noted.

From a study of the above data it will be seen that the installation of the Dow pumps have met contract requirements, both in duty and cost, with a good margin of safety.

Respectfully submitted,

WILL L. BROWN,
Engineer.

We can give your city equal service

GEO. E. DOW PUMPING ENGINE CO.

415 Sheldon Building
San Francisco, Cal.

237 S. Los Angeles St.
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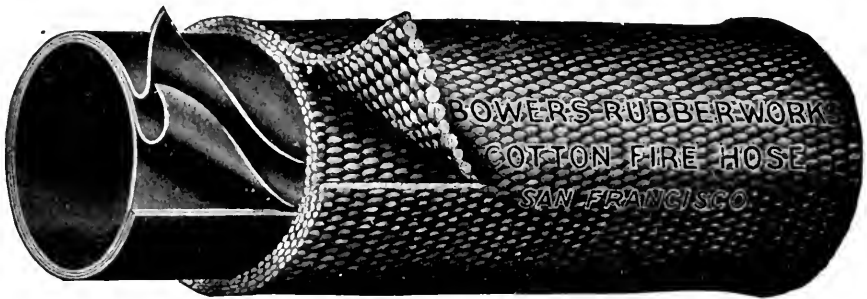
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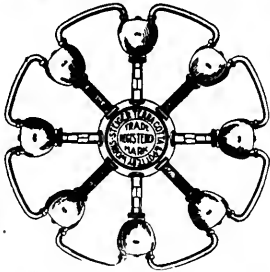
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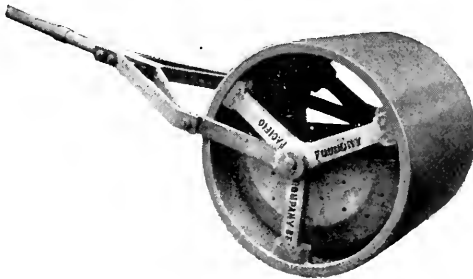
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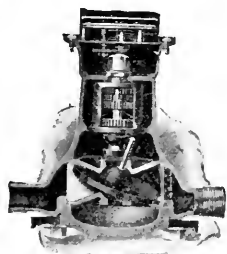
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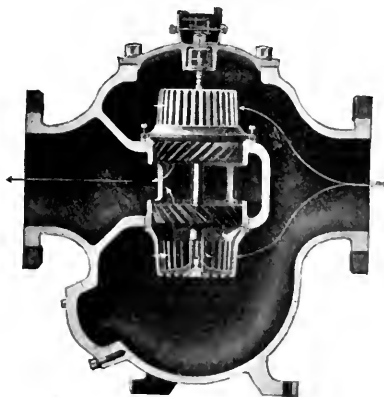
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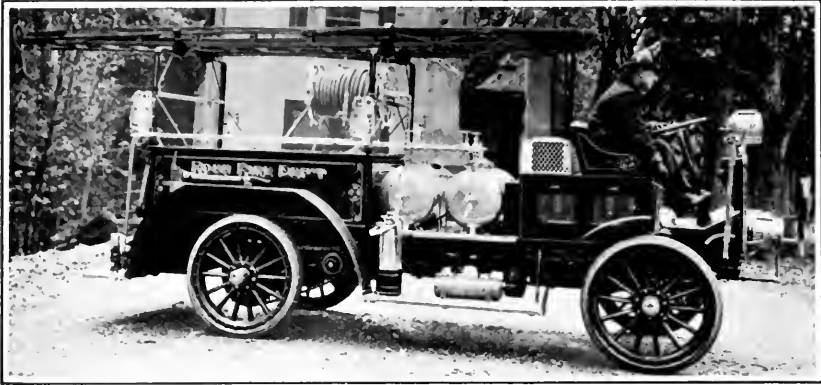


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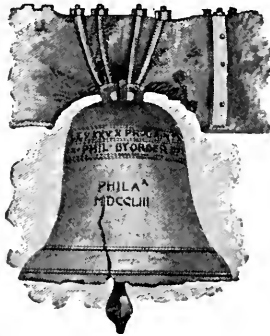
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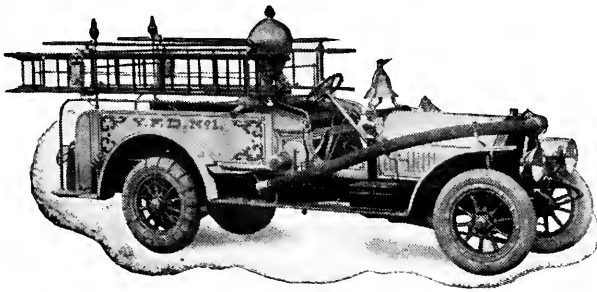
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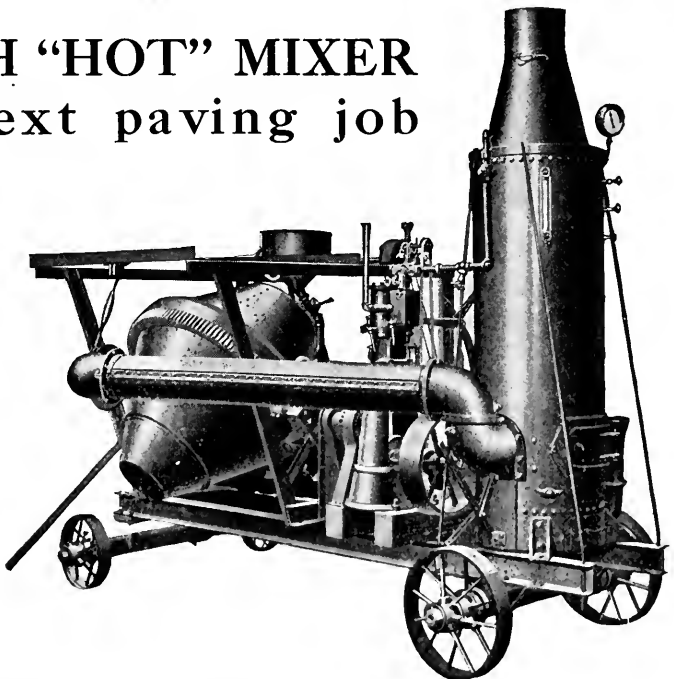
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WARRENITE COMPETITION

OFFICIALS AND CONTRACTORS NOTE

In order to provide the greatest possible competition between contractors for Warrenite Roadway we have provided the plan of filing with the proper County Officials in all cases where specifications for Warrenite Roadway are adopted our **License Agreement** by the terms of which we furnish the Warrenite Plant and necessary Bituminous Cement and expert advice at a definite price per square yard of Warrenite Roadway laid.

NOTICE TO BE INCORPORATED IN SPECIFICATION CONTRACTORS:

Attention of all contractors is called to the agreement of Warren Brothers Company, filed with this County in accordance with which agreement Warren Brothers Company agrees to license all contractors desiring to bid for the work to lay the **Warrenite Roadway** in accordance with its patents and the terms of said agreement.

The filing of a bid under these specifications will be construed as an acceptance of the terms of the license agreement filed by Warren Brothers Company at the price fixed in said agreement, which is hereto attached.



Warrenite, Lake Forest Park, King County, Wash.

WARRENITE LICENSE AGREEMENT

Full copies of form of agreement above referred to will be furnished to contractors, officials, and taxpayers on application for the same.

County and State officials are requested to notify us when specifications are prepared so that we may file this agreement formally executed and to incorporate the **Agreement** and **Foregoing Notice** in full in the official specifications in accordance with which proposals are to be received.

This agreement makes it possible for every responsible contractor to compete for laying Warrenite Roadway without the necessity of furnishing the necessary expensive heating and mixing plant, laboratory equipment and expert service which are essential to successful manufacture.

Because general contractors have not these essentials competition in sheet asphalt pavement is necessarily confined to the one or very few asphalt paving companies which have asphalt paving plants available for use in each city. As an example of the working out of this agreement, there are in all over 25 miles of Warrenite Roadway constructed in King County and Yakima County, Washington, and Elmore, British Columbia, the work being done by eight different firms of contractors.

EVERY CONTRACTOR CAN COMPETE FOR WARRENITE ROADWAY CONTRACTS

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VOL. XXVI

FOURTEENTH YEAR

No. 2

EDITORS	-	-	-	H. A. MASON AND WM. J. LOCKE
EDITORIAL OFFICE	-			NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO
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PACIFIC MUNICIPALITIES

A Journal for Progressive Cities

VOL. XXVI

FEBRUARY 29, 1912

No. 2

THE PUBLIC UTILITIES ACT AND ITS RELATION TO MUNICIPALITIES

Written Expressly for Pacific Municipalities by Max Thelen, Attorney for
the Railway Commission of the State of California



**MAX THELEN, Attorney for Railway
Commission of California**

The Railroad Commission of California was created by the Constitution of 1879. For more than thirty years its jurisdiction was confined to "railroad and other transportation companies," and as to these companies the Commission had power only to fix rates and to prescribe a uniform system of accounts. Finally, in March, 1911, the legislature submitted to the people of this state three constitutional amendments, the purpose of which was to remove certain stumbling blocks in the constitu-

tion with reference to the Commission's jurisdiction over railroad and other transportation companies and to authorize the legislature to confer upon the Commission powers of regulation and control over the other public utilities of the state as well. The Railroad Commission, anticipating the adoption of the constitutional amendment by the people on October 10, 1911, sent the writer, during the summer of 1911, to visit the leading railroad and public service commissions of the country. The writer made a careful study of the actual working of some twelve of the leading commissions of the country and of the statutes under which they operate, and on his return drafted, together with President John M. Eshelman of the Commission, the new Public Utilities Act. The widest possible publicity was given to the bill while still in its formative stage, and the public utilities affected were given every opportunity, both at public hearings and by correspondence, to present fully their objections to the bill, and over

ment of the leading public service corporations of the state avail themselves, through their representatives, of the opportunity so given. The bill was introduced in the Senate, at the extraordinary session of the legislature of 1911, by Hon. Lester G. Burnett on November 28, 1911, and in the Assembly on the same day by Hon. W. A. Sutherland. It passed the Assembly on December 12, 1911, by a vote of 68 to 1, and the Senate on December 16, 1911, by a vote of 23 to 0, was signed by Governor Johnson on December 23, 1911, and will go into effect on March 23, 1912.

The act will be discussed under the following heads: (1) the Railroad Commission; (2) powers and duties of the Commission; (3) procedure before the Commission and the Courts; (4) relation between the Commission and municipalities; and (5) benefits to municipalities.

1. THE RAILROAD COMMISSION.

The Railroad Commission will consist of five members. The Governor is directed by the Constitution, as amended on October 10, 1911, to appoint two members in addition to the three incumbents, President John M. Eshleman, Hon. H. D. Loveland and Hon. Alex Gordon, who will serve out the terms for which they were elected in November, 1910. On January 1, 1915, the Governor will appoint one commissioner to serve until January 1, 1917, two to serve until January 1, 1919, and two to serve until January 1, 1921. The terms thereafter will be six years. The salary of the commissioners is \$5,000 per annum. Each commissioner, when designated by the commission, has power to hold any investigation, hearing or inquiry, but the order of a commissioner must be approved by the

commission before it becomes effective. It follows that all the commissioners may hold separate hearings at the same time. In this way, the capacity of the commission for work has been greatly augmented. The office of the Commission is in San Francisco, but it may hold hearings in other parts of the state, and frequently does so.

The Railroad Commission is given power to regulate and control all the public utilities of the state, except that the incorporated cities and towns of the state, including the City and County of San Francisco, as will be hereinafter explained, retain the powers over public utilities which they now have, with the privilege, however, of voting those powers into the Railroad Commission and of thereafter, by a similar vote, reinvesting themselves therewith. Public utilities are defined to include the corporations or persons which own, control, operate or manage railroads; street railroads; express companies; sleeping, dining, fruit and other car companies; vessels regularly engaged in transportation over regular routes between points within this state; pipe lines; gas plants; electric plants; telephone lines; telegraph lines; water systems; public wharves; and warehouses used in connection with the transportation of property by a common carrier or vessel, or the loading or unloading of the same.

The name Railroad Commission is preserved for the reason that this is the name given by the Constitution to the body upon which the legislature is authorized to confer these additional powers.

2. POWERS AND DUTIES OF COMMISSION.

After setting forth the duties of public utilities, the Act proceeds to confer

upon the Railroad Commission very wide powers over the public utilities of the state. The Commission is given power, among others—

(a) To fix all rates, fares, charges and classifications.

(b) To establish through routes and joint rates, fares and charges.

(c) To investigate all interstate rates, fares and charges affecting this state and to apply to the Interstate Commerce Commission or to any court of competent jurisdiction for relief.

(d) To prescribe just, reasonable, safe and proper service, equipment, facilities and methods.

(e) To prescribe additions, -extensions, repairs and improvements.

(f) To direct that additional cars or trains be operated and that trains stop with greater frequency and at proper places.

(g) To direct connections in proper cases, between the tracks of railroad or street railroad corporations.

(h) To direct, in proper cases, that switch connections and spurs be installed.

(i) To direct that physical connections and joint rates over two or more telephone or telegraph lines be established in specified cases.

(j) To direct the use, in proper cases, by one public utility, of a part of the property of another utility, on, over or under any street or highway.

(k) To direct the installation of safety appliances and other devices to safeguard the health and safety of employees, patrons and the public.

(l) To regulate crossings of railroad tracks and streets or highways in specified cases.

(m) To investigate the cause of accidents and to take steps to prevent their recurrence.

(n) To provide demurrage rules, and rules for the collection and delivery of express packages and telephone and telegraph messages.

(o) To fix standards, classifications, measurements and practices of gas, electrical and water corporations.

(p) To ascertain the value of the property of every public utility.

(q) To establish uniform systems of accounts for each class of public utility.

(r) To permit or refuse to permit new street railroad, gas, electrical, telephone or water corporations to enter a field already served by an existing corporation of like kind.

(s) To permit or refuse to permit corporations mentioned in (r) to exercise rights under new franchises or permits.

(t) To regulate transfers of the property used in the public service, of public utilities except express corporations, wharfingers and warehousemen, and the acquisition by one public utility of stock in another utility.

(u) To regulate and control the issues of stocks, bonds and other evidences of indebtedness of all public utilities within the state.

3. PROCEDURE BEFORE RAILROAD COMMISSION AND COURTS.

The Act provides the procedure to be followed both before the Commission and before the courts on appeal from the Commission's decisions. Hearings and investigations may be held by the Commission, affecting any matter in the Act, either on complaint filed by a third party or on the Commission's own initiative. Any person or corporation, chamber of commerce, board of trade, or any civic, commer-

cial, traffic, agricultural or manufacturing association or organization or any body politic or municipal corporation may by petition in writing, filed with the Commission, complain of any act done or omitted to be done by any public utility in violation, or claimed to be in violation, of any provision of the Act or any order or rule of the Commission. Public utilities have the same right to complain. Hearings are had before the Commission, or a commissioner designated for that purpose, without regard to the technical rules of evidence, with a view of ascertaining the truth as speedily and simply as possible. After the hearing, the Commission files its decision, which goes into effect within twenty days unless otherwise specified in the order.

The provisions concerning procedure on appeals in the courts from orders of the Commission have been drawn with considerable care for the purpose of securing a procedure which should be simple and expeditious and properly protect the Commission and the public. These provisions are regarded as among the very best features of the Act. No cause of action may arise in any court out of any order or decision of the Commission except to a person or corporation which shall first have asked the Commission for a rehearing. The Commission, if it finds that it has made an error, can thus modify its decision before litigation in the courts results. If the rehearing is denied, or if after a rehearing the Commission reaffirms its order, any party feeling aggrieved may go directly to the state supreme court for a review of the question whether the Commission acted within its authority in making its order or decision. On the hearing before the supreme court, no new evi-

dence may be introduced, but the matter must be disposed of on the evidence presented to the Commission. In this way the public utilities will be compelled, as they should be, to present their evidence before the Commission, instead of holding it back and then going to the courts and presenting great masses of new and additional evidence which the Commission did not have before it when it rendered its decision. The findings and conclusions of the Commission on questions of fact are made final, thus preventing the great abuse of a complete re-trial in the courts of a case on its facts. If the court suspends the order or decision of the Commission, pending the hearing on the review, the party petitioning for the review must file a bond to protect the parties injuriously affected by the delay in the enforcement of the Commission's order, and if the Commission's order reduced rates or fares, the supreme court must direct the public utility affected to pay into court or into some bank or trust company paying interest all rates or fares collected by it in excess of the rates or fares prescribed in the Commission's order. If the Commission ultimately wins, all excess rates and fares so collected and deposited must be paid back by the public utility to the person or corporation who were compelled to pay the same. It is hoped that the procedure thus provided will tend to prevent the long drawnout court proceedings and the reliance on technicalities to which public utilities have largely resorted in other states to tie the hands of the state, acting through its railroad or public service commission.

The Act prescribes adequate penalties for its violation by public utilities, their officers and employees and by other corporations and persons.

4. RELATION BETWEEN COMMISSION AND MUNICIPALITIES.

Although the language conferring powers upon the Commission is very general in its terms, the Public Utilities Act, following the provisions of Section 23 of Article XII of the Constitution of the state, as amended on October 10, 1911, specifically provides that nothing therein contained shall affect the powers over public utilities vested in any city and county, or incorporated city or town at the time the Act goes into effect, which will be March 23, 1912. The result of this provision is that the Commission will on March 23 of this year become vested with such powers over public utilities as may have vested in counties or other political subdivisions, but that the city and county of San Francisco and the incorporated cities and towns of the state will retain such powers of control as may be then vested in them until they choose, if they so desire, to vote them into the Commission. The most important of these powers are the power to fix rates and fares, a power which most, if not all, of our incorporated cities and towns have, and the power to regulate the service, equipment, facilities and extensions of public utilities, a power which some of our cities have secured in their freeholders' charters or otherwise. The question as to what powers are vested in the Commission and what powers in the municipality must be answered separately as to each municipality and will depend on the constitutional, statutory and charter provisions applicable to each such municipality. An incorporated city or town may rest safe in the assurance that such powers over public utilities as it had prior to March 23, 1912,

it will continue, under the new Act, to have until it chooses to confer them upon the Commission.

Section 23 of Article XII of the Constitution of this state also provides that the legislature shall establish the election machinery by which the incorporated cities and towns of the state may, if they so desire, confer their powers as to any or all their classes of public utilities upon the Commission. The extraordinary session of the legislature accordingly passed a companion act to the Public Utilities Act, referred to as the Hewitt Election Act, introduced in the Senate by the Hon. Leslie R. Hewitt, passed by the legislature, approved by Governor Johnson on January 2, 1912, and effective on March 23, 1912. The Hewitt Act provides that an election for this purpose may be called in any city and county, or incorporated city or town, by the legislative body thereof either on its own initiative by a three-fifths vote of its members or in pursuance of a petition signed by 10 per cent of the qualified electors and filed with the clerk of the legislative body. A majority of the votes cast on any proposition submitted at the election is sufficient to confer upon the Commission power over the public utility affected by that proposition. If the city or town has voted its powers as to any class of public utilities into the Railroad Commission, it may thereafter by a similar vote reinvest itself with such power.

The Commission has no power over municipally owned plants. The same Section 23 of Article XII of the Constitution, under which the legislature acted in passing the Public Utilities Act, in defining the corporations and persons to be affected, uses the words "every private corporation," thereby

excluding by inference a municipal or other public corporation. It may be interesting to note that of some ten leading states now having public utility acts six, namely: Washington, Oregon, Nevada, Kansas, Ohio and New Hampshire, specifically exclude municipally owned or operated plants from the operation of the act, while four, namely: New York, Wisconsin, Massachusetts and New Jersey, confer upon their state commissions complete or almost complete supervisory powers even over the municipally owned or operated utilities.

5. BENEFITS TO MUNICIPALITIES.

The framers of the Public Utilities Act confidently expect that it will prove of great benefit to the people of all the municipalities of the state. Those municipalities which vote to confer their powers over public utilities upon the Commission will thereby bring to the assistance of the city in the solution of its public utility problems the strength and ability of the Commission and its force of trained experts. The Commission will have an engineering department, which will make a valuation of the properties of the public utilities under the Commission's jurisdiction and will supervise all matters relating to the physical condition of such property, such as safety devices and the adequacy of structures and facilities: a rate department, which will supervise questions of rates and fares: a service department, which will have supervision of the quantity and quality of the service rendered to the public by the public utilities over which the Commission has control, such as the sufficiency of trains or cars, the compliance or failure to comply

with the reasonable requirements of the traveling public, the quality, quantity and pressure of gas, electricity and water and the service of telephone and telegraph companies, an auditing department which will work out a system of accounting for each class of public utilities, wherever feasible, and also furnish to the Commission the necessary information from the records of the public utilities in cases of rate fixing, approvals of stock and bond issues and kindred matters: and a legal department whose duty it will be to prevent the Commission from falling into the pitfalls which able corporation counsel sometimes set for public authorities and to fight to the last ditch when the orders and decisions of the Commission are attacked in the courts. Each of these departments will be properly subdivided so as to secure as far as possible men particularly fitted to handle each kind of work which the Commission will be called upon to perform, to the end that the Commission's business may be disposed of promptly and efficiently. It may be noted here that of the ten states hereinbefore mentioned, five, namely: New York, New Jersey, New Hampshire, Washington and Nevada confer upon their state commissions complete power over public utilities situated within municipalities, while the other five, Wisconsin, Massachusetts, Kansas, Ohio and Oregon, while retaining certain limited powers in their municipalities, all provide for an appeal from the city council, board of selectmen or other legislative body to the Commission, which has power to sustain, modify or reverse the findings and orders of the municipal authority.

Those municipalities which prefer to retain their present powers will also

be benefitted by the new Act. The Commission will exercise for their benefit the residuum of power which these cities and towns have not had, such as particularly control over the stocks and bonds of their public utilities and the power to compel them to give good service and make the necessary extensions to their plants, where the cities and towns are not at present vested with that power. And even with reference to those powers which the incorporated cities and towns now have, such as the power to fix rates and occasionally to prescribe service and extensions, the Commission will at all times endeavor, by means of the information which it will collect and the knowledge and experience of its experts, to be of service to the municipalities of this state whenever called upon for assistance.

The problem of placing the relation between the public utilities and the people on a basis which shall be fair and reasonable and just is the great-

est problem which faces this state today. It is an economic problem and affects directly the comfort and prosperity and happiness of every man, woman and child in this state. The framers of the Public Utilities Act believe that the administration of that Act will prove of tremendous benefit to the people of this state, while at the same time winning for the public utilities,—such of them as are not in the meantime taken over by the municipalities,—a measure of confidence on the part of the traveling and consuming and investing public which they otherwise could not possibly have won. To accomplish this end the Railroad Commission needs the help of our municipalities, and the municipalities need the help of the Railroad Commission. These two forces should work together harmoniously and unitedly to secure the common end desired by both,—the happiness and prosperity of this great state and of all her people.



PUBLIC UTILITIES FRANCHISES

Opinion of the New Constitutional Amendment of Article XI, Section 19.

By Percy V. Long, City Attorney of San Francisco



PERCY V. LONG

On December 26th, 1911, the Board of Supervisors of the City and County of San Francisco adopted Resolution No. 9159 (New Series) which reads in part as follows:

"WHEREAS, The Sierra and San Francisco Power Company have applied for a large number of pole and wire permits for the purpose of supplying power to the City and County of San Francisco and the inhabitants thereof and for other purposes, and

"WHEREAS, the City Attorney did in April, 1910, render an opinion unfavorable to the right of said Sierra and San Francisco Power Company to erect poles and wires without first having a franchise therefor, and

"WHEREAS, the people of the State of California did on October 10th, 1911, amend Section 19 of Article XI, of the Constitution of the State of California so as to give the Board of Supervisors control over corporations desiring to supply light, heat or power to the inhabitants of any city,

"BE IT RESOLVED, That the Clerk of the Board of Supervisors be, and the same is hereby instructed to request the City Attorney to render an opinion as to the powers and proper procedure to be followed by this Board in view of the above amendment;

"AND BE IT FURTHER RESOLVED, That the Clerk be and the same is hereby instructed to notify the Board of Public Works and the Department of Electricity to grant no permits to the said Sierra and San Francisco Power Company for the erection of poles, the laying of conduits or the stringing of wires until further instructed by this Board."

On the same day that the above resolution was adopted, the Board of Public Works addressed the City Attorney a letter reading as follows:

"On the 10th day of October, 1911, the electors of the State of California adopted an amendment to the Constitution of the said State, which amended Section 19 of Article XI of said Constitution, such amendment having been submitted under the designation of 'Senate Constitutional Amendment No. 49.'

"The Sierra & San Francisco Power Company on December 21, 1911, peti-

tioned this Board for permission to erect poles for the purpose of extending its existing lighting system along certain streets and avenues mentioned in its said petition, a copy of which petition is herewith transmitted and made a part of this communication.

"In view of the amendment above referred to, this Board desires to be advised whether the privilege of using the public streets and thoroughfares of the City and County to the extent accorded by the provisions of Section 19 of Article XI of the Constitution as the same existed prior to the said amendment, to any individual or company duly incorporated for the purpose of supplying the City and its inhabitants with water or artificial light, has in any degree or measure been abridged, restricted or modified, in consequence of the adoption of said amendment; and, further, as to the application of the provisions of said Section 19 as now amended to any individual or company now or hereafter desirous of supplying this City with water or artificial light in pursuance thereof, considered in connection with the existing organic law of the City and County."

OPINION.

The opinion of April 8th, 1910, referred to in the above Resolution No. 9159, referred to an application of the Sierra and San Francisco Power Company for a permit to erect poles for the furnishing of **power** and not **light**. It was then held that Section 19 of Article XI of the Constitution granted certain rights for lighting purposes, but none for the furnishing of power; and that a franchise was necessary for the erection of poles for the furnishing of power. Inasmuch as the Constitutional

section above referred to never conferred any rights as to the use of the streets for the furnishing of power, the amendment of that section does not affect the questions then discussed, and you are referred to my opinion of April 8th, 1910, as to the procedure to be followed in granting permits for the erection of poles for that purpose.

It appears, however, from the enclosure contained in the letter from the Board of Public Works that the recent application of the same company is for a permit for the erection of poles for the extension of its **lighting** system. This presents a different question from that discussed in April, 1910, upon which the opinion then rendered is not controlling.

The other portions of the resolution and the letter from the Board of Public Works raise substantially the same questions and will be answered together.

Replying to the first inquiry of the Board of Public Works, permit me to advise that the privilege of using the public streets and thoroughfares of the City and County for the laying of pipes, poles and conduits for lighting and water has not only been abridged, restricted and modified by the constitutional amendment referred to, but that the relative rights of the City and the public service corporations in such streets have been placed thereby upon an entirely new basis.

Prior to October 10th, 1911, Section 19 of Article XI of the Constitution read as follows:

"In any city where there are no public works owned and controlled by the municipality for supplying the same with water or artificial light, any individual, or any company duly incorporated for such purpose, under and by

authority of the laws of this state, shall, under the direction of the superintendent of streets, or other officer in control thereof, and under such general regulations as the municipality may prescribe, for damages and indemnity for damages, have the privilege of using the public streets and thoroughfares thereof, and of laying down pipes and conduits therein, and connections therewith, so far as may be necessary for introducing into and supplying such city and its inhabitants either with gaslight, or other illuminating light, or with fresh water for domestic and all other purposes, upon the condition that the municipal government shall have the right to regulate the charges thereof."

The amended section adopted on October 10, 1911, and now in effect, reads as follows:

"Any municipal corporation may establish and operate public works for supplying its inhabitants with light, water, power, heat, transportation, telephone service or other means of communication. Such works may be acquired by original construction or by purchase of existing works, including their franchises, or both. Persons or corporations may establish and operate works for supplying the inhabitants with such services upon such conditions and under such regulations as the municipality may prescribe under its organic law, on condition that the municipal government shall have the right to regulate the charges thereof. A municipal corporation may furnish such services to inhabitants outside its boundaries; provided that it shall not furnish any service to the inhabitants of any other municipality owning or operating works supplying the same service to such inhabitants, without

the consent of such other municipality, expressed by ordinance."

The purpose of this constitutional provision as originally adopted was to exempt the proprietors of the business of supplying water and light to the inhabitants of municipalities from the necessity of obtaining franchises from local authorities.

The proponents of the section based the argument for its adoption upon the necessity of free competition and prevention of monopoly in the furnishing of these necessities, without power in municipalities to limit or tax the privilege. The Supreme Court of this State has construed the section in accordance with its declared purpose, and has held, therefore, that the provisions of the section, as they existed prior to the recent amendment, were self-executing and conferred upon persons or corporations who availed themselves of their privileges an absolute right to the use of the streets of the cities of the state, which right could not be abridged or denied by the cities themselves. The control of the cities over their streets for the purposes named has been held to have been limited to police regulations for the safety and convenience of their inhabitants, and to regulations for protection from damages.

PEOPLE VS. STEVENS, 62 Cal. 209;

IN RE JOHNSON, 137 Cal. 115;

DENNINGER VS. RECORDER'S COURT, 145 Cal. 629;

PERERIA VS. WALLACE, 129 Cal. 397;

MUTUAL ELECTRIC LIGHT CO. VS. ASHWORTH, 118 Cal. 1;

MERCED FALLS GAS, ETC. CO VS. TURNER, 2 Cal. App. 720;

The adoption of the recent amendment evidences a radical change of policy by the people of the State as to the relation between municipalities and public service corporations which might thereafter desire to occupy the streets for water or lighting pipes, poles or conduits. In 1878 when the present constitution was adopted, it was thought wise to remove the privilege, as far as possible from municipal interference. In 1911, the full control of their streets was restored to the cities, with the right to prescribe in their organic law the conditions and regulations under which such streets may be used for the future placing of water and lighting pipes, poles and conduits.

You are advised, therefore, that on October 10th, 1911, the privilege which had theretofore existed in favor of public service corporations of the use of the streets of San Francisco, free from entire municipal control, was revoked and removed as to all persons and corporations who had not theretofore availed themselves of the provisions of the above referred to section of the Constitution.

The application of the Sierra and San Francisco Power Company presents, however, a somewhat narrower question. It appears that the application of that company is for a permit "to erect poles for the purpose of extending its existing lighting system." I understand from this statement that, prior to October 10, 1911, the petitioning company had placed poles in some of the streets of San Francisco for the purpose of supplying the inhabitants of the city with electric light; and that it now desires to extend this system by the placing of poles upon streets

other than those occupied by it prior to the date mentioned.

The question presented by such facts is, therefore: What rights, if any, did a lighting company acquire in the use of the streets of San Francisco upon which it had placed no poles or conduits prior to October 10, 1911, by reason of the fact that it had established, prior to that date, a partial system for furnishing the inhabitants of the city with electric lights and had actually placed its poles or conduits on a portion of the streets?

The nature of the right acquired in the streets of a city by a water or lighting company under the provisions of the Constitution, as it existed prior to the recent amendment, is defined by the Supreme Court of this State in the case of *STOCKTON GAS, ETC. CO vs. SAN JOAQUIN CO.* 148 Cal. 313, (at pages 318, 319 and 321) as follows:

"The constitution extends a potential right to those enumerated in its provisions to avail themselves of the benefit of the franchise. But this general extension of the privilege does not invest individuals or corporations with the franchise in the streets of any particular city. It is only acquired when the constitutional grant is actually accepted; **when the pipes and conduits for gas or the electric poles are laid in or erected on the streets of the city.** It is then owned by any individual or corporation doing so, as an accepted franchise under the general constitutional grant, exercised in the particular city where these appliances are laid or erected. By the provisions of the constitution all persons and all corporations or-

ganized for the purpose of supplying these necessities are given the capacity to take the franchise extended thereunder, but they do not acquire it until **they have** accepted it by proceeding to its actual exercise." * * *

"We think * * * that the franchise extended by the constitutional provision to lay pipes and conduits, or erect poles and supply the inhabitants of a city with artificial light, is an incorporeal hereditament—is real estate **in the nature of an easement** pertaining to the streets of the city in which it is exercisable; that it is inseparably annexed to the soil out of which the profit arises, and has a local situation in the place, and that place only, where the right is actually exercised." * * *

"From these authorities it would appear, then, that the franchise extended by the constitution is of such a character that it is indissolubly annexed to **the streets of a city in and upon which it is exercised**, and that while an incorporeal hereditament, it is, in contemplation of law, real property, **an easement appurtenant to such streets.**"

The decision in the above case is based, in part, upon the early case of appeal of *N. B. & M RR Co*, 32 Cal. 512, where the following language is used with reference to the right acquired by a street railway company in certain designated streets under a franchise for the establishment and operation of a railway line:

"The interest is local—fixed to the particular land, the particular street—and cannot be enjoyed beyond, or independent of that fixed

locality. It is immovably established on the particular portion of the earth as the lot occupied by stores fronting on the same street, and the estate in the one can no more be enjoyed away and apart from its fixed locality than the estate in the other; and the right of the street railroad company to the exclusive control and enjoyment of its estate in the soil of the street to the full extent of that estate, is as perfect as the right of the lessee or owner of the lot fronting on the same street to control and enjoy his estate. The several estates are substantially of the same kind, and are of equal dignity before the law, but one is larger, more extensive than the other. Practically, they differ only in the quantity of interest, not in quality."

The above language is practically adopted in the Stockton case as applying with equal force to the constitutional franchise granted by the section under discussion. To the same effect are *Providence Gas Co. vs. Thurber*, 2 R. I. 15; 55 Am Dec. 621; *Consolidated Gas Co. vs. Baltimore—Md—* I. L. R. A. (N. S.) 263, and many other cases.

The above cases further decide that the franchise acquired by acceptance of the constitutional privilege is a special franchise having a local situs, and is taxable in the city where located. (See also *Southern Pacific Co. vs. Portland* 177 Fed. 958; *Bank of California vs. San Francisco*, 142 Cal. 276.)

The acceptance of this constitutional privilege results in the formation of a contract between the State and the company so accepting, which contract and the property rights which become

vested thereunder, are protected by the Federal Constitution.

WESTERN UNION vs. HOPKINS, 116 Pac. 557;

SUNSET TEL. CO. vs. PASADENA, 118 Pac. 796;

SUNSET TEL. CO. vs. POMONA, 172 Fed. 837;

No contract or property rights were acquired, however, under the former constitutional provision until and unless there had been an actual acceptance of its provisions. It was competent for the State to withdraw at any time the privilege extended under the constitution; and the only rights not affected by such withdrawal are such as had become vested by an actual acceptance of the privilege while it remained in force.

PEARSALL vs. GREAT NORTHERN RR. CO. 161 U. S. 648; 40 L. Ed. 838, and cases there cited.

From the above authorities the following legal principles are established as the law of this State:

(1) The Constitutional grant contained in Section 19, Article XI, as it existed prior to the amendment, conferred no right in the streets of the City until accepted by a corporation for the purposes therein designated.

(2) The acceptance of such privilege creates a contract, which contract cannot be impaired by a subsequent amendment to the State Constitution.

(3) Whatever rights in the streets of California municipalities became vested in public service corporations prior to October 10th, 1911, cannot be taken away or abridged (except by the proper exercise of the police power), without due compensation to the owner of such rights.

(4) The rights acquired in the streets of the city under the former constitutional section are in the nature of easements in such streets.

The only questions upon which differences of opinion can exist are three, viz:

(1) What acts of a public service corporation constitute an acceptance of the constitutional privilege;

(2) What is the nature and extent of the contract formed by such acceptance; and

(3) What rights become immediately vested by such acceptance; and particularly do these rights extend to **all** the streets of the city, or to those only which were actually occupied prior to the amendment of the constitution.

It is contended that the offer extended by the former constitutional section was for the use of **all** the streets of the city; that the beginning of a distributing system in the city in a **bona fide** attempt to establish an entire system for furnishing light constituted an acceptance of such entire offer; that upon such acceptance a contract was created the scope of which is measured by the terms of the offer and not by the quantum covered by the evidence of acceptance; and that, therefore, if a beginning had been made in the establishment of a lighting system in the city prior to October 10th, 1911, the corporation which had made such beginning thereby acquired a vested right to the use of all the streets of the city, of which it could not be deprived by the constitutional amendment.

If this position is correct, any act of a public service corporation, performed prior to October 10th, 1911, either within or without the city, which evidenced a **bona fide** intent to establish

a lighting system in San Francisco would, in my judgment, have had the same result. The vice in the argument is that it makes the acceptance of the **intent** of the accepting corporation rather than upon the physical act of constitution privilege depend upon the use of the streets.

The contract between the State and a public service corporation, which is invoked for the protection of alleged vested rights, is the franchise itself. No contract is created by which the State is bound to grant a franchise in the future. No contract exists until the franchise comes into life. In the usual case of a franchise by a municipality over certain designated streets, the contract is complete upon the grant of the franchise. There is then a present, completed grant. In the case of the constitutional franchise, however, there is neither grant, franchise nor contract until the potential right is availed of. As is said by the Supreme Court in the Stockton case (*supra*), "It (the franchise) is only **acquired** when the constitutional grant is actually accepted; when the pipes and conduits for gas are laid in or the electric poles erected on the streets of the city.

It has been held in other states, in cases involving direct grants of franchises to public service corporations for the use of certain designated streets, that a change of law as to the conditions under which use shall be permitted cannot be applied to any of the streets so designated, even if they had not been actually used under the franchise at the time the law was changed. In cases of that character there was completed grants or franchises which conferred immediate rights for the future use of the streets named. Such completed grants or franchises could

not be impaired by subsequent legislation (except in the exercise of the police power). Under our former constitutional provision there was no grant, no acquirement of any right until there had been an acceptance **by use of the streets**. This distinction between the two classes of franchises is the reason why the decisions last above referred to are not, in my judgment, controlling upon the present inquiry.

In *Pearsall vs. Great Northern Railway* (supra), the Supreme Court of the United States adopts the following definitions of a vested right: "An immediate fixed right of present or future enjoyment," (Fearn). "An immediate fixed right of present enjoyment, or a present fixed right of future enjoyment," (Chancellor Kent).

It is plain that no right of enjoyment of the privilege of using the streets of a city become immediate, present or fixed under the former constitutional provision until an acceptance of some character of the privileges there offered. The crux of the question is as to the nature of the acceptance necessary in order to vest a present right. In the latest cases in which the Supreme Court of this State has considered the taxation of franchises of this character it is said:

"And to the extent that the offer of the state contained in the section was accepted by a telegraph company **by actual occupation of a highway** prior to any repeal, modification or suspension of the section, no right of revocation having been reserved, such telegraph company has vested rights that cannot be taken away by state or city without compensation."

WESTERN UNION TEL. CO.
vs. HOPKINS, 41 Cal. Dec. 649;
116 Pac. 557;

SUNSET TEL. & TEL. CO. vs.
PASADENA, 42 Cal. Dec. 598;
118 Pac. 796.

It is my opinion that under the authorities above cited, the necessary act of acceptance is the use of the streets by the placing of pipes, poles or conduits; and that the privilege can be said to have been accepted only so far as it has been used. In other words, the extent of the use of the privilege is the measure of the right conferred. The offer of the constitution was not of all the streets of the city, irrespective of use, but of those only which should be put into use by the accepting corporation. The constitutional offer was a mere license or privilege, which could have been withdrawn, until it was converted into a vested franchise by use of the streets. The minds of the state and the public service corporation did not meet with regard to any particular street until the offer was accepted as to that street; hence there was no contract or franchise as to that street until that time. The right conferred by such franchise, when acquired, was in the nature of an easement in the particular streets "in and upon which it is exercised."

It follows, therefore, that the rights acquired by public service corporations in the streets of San Francisco under the provision of the Constitution as it existed prior to October 10, 1911, must be limited to those streets which had been actually occupied, prior to that date, by the placing of poles, pipes or conduits thereon. No rights were acquired as to streets not so occupied, and the constitutional privilege of their

use free from municipal restrictions has now been withdrawn.

The views above expressed are strengthened by the well established rule, adopted by the Courts, that grants of the character here discussed are always to be constructed in favor of the public.

The second inquiry in the resolution of the Board of Supervisors, and also in the letter from the Board of Public Works raises the question as to the effect of the provisions of the organic law of the City upon the application of "any individual or company now or hereafter desirous of supplying the city with water or artificial light." The term "organic law", as used in the present section of the constitution, includes the city charter, and also all ordinances of the city legally passed under authority conferred by the charter. (*Harrison v. Horton*, 5 Cal. App. 417 and cases there cited).

The following provisions of the San Francisco charter are to be considered in this connection:

Article II, Chapter II, Section 1:

"Subject to the provisions, limitations and restrictions in this charter contained, the Board of Supervisors shall have power: * *

2. "Except as otherwise provided in this Charter, or in the Constitution of the State of California, to regulate and control for any and every purpose, the use of the streets, highways, public thoroughfares, public places, alleys and sidewalks of the City and County.

13. "Except as otherwise provided in this charter, to regulate and control the location and quality of all appliances necessary to the furnishing of water, heat, light,

power, telephonic and telegraphic service to the city and county."

Article VI, Chapter I, Section 9:

"The Board of Public Works shall have charge, superintendence and control under such ordinances as may from time to time be adopted by the Supervisors:

"(1). Of all public ways, streets, avenues, courts, roads, highways and boulevards now open, or which may hereafter be opened in the city and county; of the manner of their use; and of all work done upon, over, or under the same; and herein particularly the Board shall have exclusive authority to prescribe rules and grant permits, in conformity with the ordinances of the Supervisors, for * * * the erection of telegraph and telephone poles and poles for electric lighting, and the laying under the surface of the streets or sidewalks of telegraph or telephone wires for electric lighting and power * * * and without such permission in writing from said Board, no person shall do any of the acts in this section enumerated."

Article II, Chapter II? Section 7:

"The Supervisors shall have no power to grant franchises or privileges to erect poles or wires for transmitting electric power or for lighting purposes along or upon any public street or highway of the city and county, except upon all the conditions and in the manner, including competitive bidding and payment of a percentage of gross receipts, hereinabove set out, and upon the further condition that the

Board shall at all times have the right to regulate the charges of any person, company or corporation using, enjoying or possessing such franchise or privilege."

The conditions and manner of granting franchises is particularly set forth in Article II, Chapter II, Section 6 of the charter.

The provisions of the last section above set forth, as to the necessity of franchises for lighting purposes, were inoperative prior to the amendment of October 10, 1911, to Section 19, Article XI of the Constitution, for the reason, as above stated, that the constitutional provision contained a grant of power which could not be denied or abridged by the requirement of a municipal franchise.

In the recent case of *SUNSET T. & T. CO. vs PASADENA*, 42 Cal. Dec. 593, at pages 603 and 604; 118 Pac. 796, the Supreme Court says:

"The provisions of the charter purporting to give such full control as to the use of streets for pipes and conduits for the furnishing of water and light are not effective, in view of the direct grant for those purposes made by Section 19 of Article XI of the Constitution (see *In re Johnston*, 137 Cal. 115), is not a sufficient warrant for holding that it was not intended to vest such control in the city. We think it impossible to reasonably construe these provisions as purporting to authorize on the part of the city only such regulations as come within the domain of the police power."

There can be no question but that the full control of the use of the streets of the city is now vested in the Board of Supervisors. In my opinion Section

7 of Chapter II of Article II above referred to is a valid limitation upon the exercise of power granted in other portions of the charter as to this control of the streets. The purpose of said section was to restrict the manner of the use of the power of control of streets whenever such power might be used. When the constitutional privilege of the use of streets was removed this section immediately applied to and restricted the power then restored to the municipal authorities.

You are, therefore, advised that the franchise or privilege of erecting poles or wires for lighting purposes may now be granted by the Supervisors under such conditions or regulations as such Board may by ordinance prescribe, provided, however, that such ordinances do not conflict with the provisions of Section 7, Article II, Chapter of the Charter above referred to.

To summarize the matters discussed in the above opinion, my reply to your inquiries is as follows:

(1) The amendment of October 12th, 1911, to Section 19 of Article XI of the Constitution, has entirely changed the relations of the City to public service corporations, who might thereafter apply for the privilege of using any of the streets of the City for the installation of poles, wires, pipes, or conduits for the furnishing of water or light.

(2) A public service corporation which accepted the offer of the state contained in the section of the Constitution above referred to, prior to its amendment, by the actual occupation of any of the streets of the City, thereby acquired a vested right in the use of the streets as occupied by it, which right cannot be taken away by the State or City without compensation.

(3) The above constitutional grant conferred no right in the streets of the City in favor of any public service corporation, except in those streets actually used by it prior to the amendment of the Constitution; the extent of the use of the privilege being the measure of the right conferred.

(4) Subsequent to October 10, 1911, the Board of Supervisors had been vested with the full right of control over the unused streets of the City, and with the power, subject to the Charter provisions of specifying conditions and regulations under which the franchise or privilege of erecting poles

for lighting purposes may be obtained.

(5) This right of control must be exercised by the Board of Supervisors and by the Board of Public Works in accordance with the provisions of the Charter, and also in accordance with all valid ordinances which may be enacted controlling such use.

(6) No franchise or privilege can be now granted for the use of any of the streets of San Francisco for lighting purposes except upon compliance with the provisions of Section 7, Chapter II, Article II of the Charter as to the manner of granting franchises and the conditions to be contained therein.



THE LONDON SLIDING SCALE

By G. A. Gesell, Professor of Public Speaking, University of Kansas

Is cheap service attainable under private monopoly? Must the relation of producer to consumer always be strained? Is inflation of capital a necessary element to the success of private corporations? Is municipal ownership inevitable?

These were questions confronting Boston six years ago when the independent gas companies were merged into the Consolidated Gas Company. In return for new rights granted to the consolidated corporation, the Public Franchise League insisted on a reduction in the price of gas. The corporation retaliated that it was declaring but reasonable profits; that dividends warranted no change and that any superimposed cut in rates would be carried to the higher courts. At this juncture the Public Franchise League came for-

ward with a new proposal, unique to American methods of control, the English Sliding Scale of Profits and Prices. The arrangement fixed the rate of dividend at 7 per cent and the price of gas at 90 cents and further provided that for every reduction of five cents in the price of gas, the dividends might be increased 1 per cent. The acceptance of this Sliding Scale device by The Consolidated Gas Company of Boston, marks a new mile stone in the control of public utility companies in America. The price of gas has subsequently gone down to 80 cents per 1000 cubic feet; dividends have jumped to 9 per cent; stock watering has been effectually checked; the relation of the utility company to the public is friendly and the agitation for municipal ownership is waning. It is with the principles

underlying this radical departure from the universal and accepted American methods of control and the momentous possibilities involved that this paper will deal.

The Sliding Scale is distinctly an English institution. A somewhat detailed review of British experience with utility companies is therefore pertinent and essential for an accurate understanding of the Sliding Scale. The control of utility companies in England has always been lodged in Parliament. Prior to 1847, all control was exercised by special acts which constituted the corporation's charter or franchise. England soon learned, however, that this special enactment was expensive and lacking in uniformity. The Water Clause Acts of 1847 and 1871 incorporated into a general law sixty or eighty sections of universal application and provided that these were to be automatically included in every special act thereafter issued. The only section of this general enactment of interest to us in this discussion is that dealing with dividends. Under this act the profits for any one year are not to exceed 10 per cent on the paid up capital unless a larger sum is necessary to make up a deficiency of any previous year. The act also provides that any excess over clear profits may be invested in government bonds to form a reserve fund not exceeding one-tenth of the nominal paid up capital. The act also provides that the dividend on additional ordinary stock is to be fixed at 7 per cent and preference shares at 5 per cent. For twenty years this maximum dividend arrangement applied to all utility companies. The interest of the act was to give unlimited play to private initiative. The framers of the law realized the wisdom of giving to

corporations free scope in the manufacture and distribution of their products. They recognized that gas corporations are subject to the law of diminishing costs; that as the price of gas is reduced the consumption increases and the ability to pay bigger dividends is strengthened. What they did not appreciate was that the maximum dividend might be easily reached; that the outer limit might become the actual rate of return. And this is exactly what happened. With the development of gas manufacture during this period and the provision for a reserve fund, corporations found it unnecessary to exert themselves to declare the maximum dividend. The maximum dividend was not an outer limit or goal, it became the actual, customary rate of return for all corporations in the United Kingdom. The maximum dividend had aimed to encourage thrift and economy and cheaper gas. It failed in its purpose for after corporations reached the maximum dividend there was no further stimulus to reduce the price of gas, and economy and good management ceased. The consuming public protested against the high cost of gas but there was no recourse, no means of forcing down the price, for Parliament had taken no cognizance of the relation of prices to profits. Parliament had viewed the problem from one angle only. It had made an arbitrary limit on profits which removed every incentive to cheapen gas.

London in desperation attempted official revision of prices through the agency of the Board of Trade, the intermediary between the public and the corporations. The experience was brief and disheartening. The Board of Trade reporting in 1875 of its official revisions, says:

"It would seem a priori to be at least doubtful whether any government department or any official commissioners, however zealous and competent, can succeed in dictating to a trading company the terms and conditions of manufacture on which they can make the greatest amount of profit, and to fix the price of their article accordingly. And one of the questions now raised will be whether the existing system of revision has been effectual or can be possibly made so. It is unnecessary to add that the Board of Trade shrink from no trouble or responsibility in the matter; and if they have intimated an opinion adverse to the system which it is their duty to administer, it is only because they doubt whether it is possible so to administer that system as effectually to protect the public interest."

For twenty years there was dissatisfaction on all sides. The consuming public clamored for reductions; the gas magnates stubbornly resisted official revision of rates. City after city took over its gas plant and private concerns realized that they were facing a crisis. Statesmen and engineers grappled with the problem. All were agreed that the maximum dividend arrangement had outgrown its usefulness. It had succeeded in restricting profits to be sure, but had at the same time destroyed private initiative; antagonized the consumers; and was not providing England with cheap gas.

At the meeting of the British Association of Gas Managers in 1874, we have the first organized efforts at constructive reform. Sir George Livesey, President of the Association, and for twenty years connected with one of London's largest gas companies in the capacity of engineer and manager

came forward with a clear cut analysis of the problem. He viewed with alarm the growing antagonism of the public and said it was all due to an erroneous conception of the nature of gas production. Private operation, he declared, was dependent on the good will of consumers; that the corporation and consumers should in reality be partners both participating in the profits and losses by the corporation. Gas industries, Livesey maintained, are subject to the law of diminishing costs; that as the price is lowered, business expands, and because of the constant factors in production of cost of making 1000 cubic feet of gas is so diminished as to permit a lower sale price and at the same time a higher return on capital. Cheap gas should mean high dividends and high gas low dividends. He admitted that gas rates were excessive in England but ridiculed the idea of securing reductions through restrictive arbitrary limitations of profit because, as he maintained, it "was destroying the goose that laid the golden eggs." In place of arbitrary rigid maximum dividend, Livesey proposed the flexible automatic Sliding Scale. Instead of making profits a fixed constant factor, he argued that it should be made variable, depending upon service rendered to the people. Livesey's idea was to fix a standard rate of dividends and a standard price and reward the corporation that sold below the standard price by permitting it to increase its dividends in a certain ratio, and vice versa penalize the corporation that sold in excess of the standard price by reducing its profits in the same ratio. His address played such an important part in the solution of one of England's most intricate municipal problems that I read his concluding remarks:

"I hold it to be the most strongly in the interests of gas shareholders, directors and managers to heartily assist in carrying out some system whereby they may have their customers with them; some easily workable self-acting arrangement that would put an end to the cat and dog life, and make them live and work in peace with each other. In fact make it really to the interest of the gas companies and gas managers to do the best they can for the consumers. The position in which you have placed me is one that compels me to endeavor to look at these matters in an impartial spirit and should I be charged with making statements, or expressing opinions, apparently adverse to our special interests, I shall contend that the interests of gas companies are so closely bound up with the interests of their customers that the two are really identical. It is now universally admitted that the supply of gas must be a monopoly of which we are the fortunate possessors; but the objections to all monopolies are so great that nothing but necessity can justify them; it is therefore of the utmost importance, if we would retain our position, that our customers should be satisfied, which I unhesitatingly maintain is possible of attainment."

The year following this address The Commercial Gas Company of London introduced the Sliding Scale; The Gas Light and Coke Company followed in 1876 and the South Metropolitan Company in 1877. Since then it has been widely accepted. According to the latest available reports about fifty per cent of England's gas companies manufacturing about seventy-five per cent of England's gas, are today operating under the Sliding Scale device.

There are three important factors to

every Sliding Scale arrangement which should now engage our attention, first, the Standard dividend, second, the standard price, and third, the ratio in which the dividend is to vary with the change in price.

In the original Sliding Scale Acts the maximum dividend was accepted as the standard dividend. This has been the uniform practice and is equitable, for corporations entering into a new arrangement should at least be assured their customary or previous rate of return.

The next question is to fix the standard or initial price; that is, if dividends are to be increased with a reduction in price what price shall we begin with? England found it very difficult to interest private gas companies in the Sliding Scale and as a special inducement the price has always been fixed a few pennies above the price that would pay the interest and dividend charges.

The third factor in the Sliding Scale of prices is dividends. The following provision is found in practically every special act.

"For every penny or part of a penny charged in excess or diminution of such standard price in any one year, the standard rate of dividend shall for such year be reduced by five shillings in the hundred pounds per annum."

That is, the Sliding Scale permits corporations to increase their dividends by one-fourth of 1 per cent for every decrease in price of one penny and vice versa, obliges the corporations to diminish their dividends by one-fourth of 1 per cent for every increase in price of one penny.

In addition to these specifications there are clauses with the formation of insurance and reserve funds and the disposition of new stock. In England

all new stock must be sold at public auction and not below par. Stock selling at 130 is capitalized at 010 and this adds to the capital of the company the money obtained in the way of premiums. This has effectually done away with stock watering and given to the public the benefit of the growth and development of the enterprise.

What has been the effect of the Sliding Scale in England? In a speech before the National Electric Light Association, W. H. Gardner sets a standard of success which we can apply to England. "The public as the buyer," he says, "is interested only in obtaining the maximum service of quality best adapted to its wants, at the minimum expense. The specific interest of the corporation as the seller is in obtaining the maximum net earnings compatible with security to its investment."

The annual returns to Parliament make it apparent that the Sliding Scale has resulted in bigger dividends. The Gas Light and Coke Company is declaring 11 per cent, the Commercial Company 13 per cent, and the South Metropolitan 13½ per cent. These are the three London companies whose management has been very conservative. Other corporations are declaring 14, 14½, 15 and as high as 17 per cent.

The exact effect of the Sliding Scale on prices is difficult to determine because the general tendency of prices for all companies has been downward. Yet sufficient data is available to come to the conclusion that the Sliding Scale has been instrumental directly and indirectly in giving England cheaper gas. The Parliamentary investigating committee reporting in 1899 on the general effects of the acts, came to this conclusion.

"This arrangement (the Sliding Scale) has on the whole had an excel-

lent effect on the companies, and has given them a strong motive to keep down the price of gas. Since the introduction of the Sliding Scale the prices charged for gas have at no period been as high as the standard price permitted to each company, and in every case have fallen considerably below the prices charged before the introduction of the Sliding Scale."

The three London companies have reduced their prices from 90 cents to 70 cents, 72 cents to 48 cents, 90 cents to 52 cents per 1000 cubic feet since the scale was put into operation.

A comparison of Field's "Analyses between 1880 and 1903, 48 maximum dividend companies had on the average reduced their prices 17 cents per 1000 cubic feet while the 62 Sliding Scale companies for the same period made average reductions of 21 cents. Nathan Mathews in a most extensive investigation of Gas Control in England for the Consolidated Gas Company of Boston concludes that the Sliding Scale companies have not only made remarkable reductions but that they have acted indirectly in reducing the rates of those companies still operating under the old maximum dividend arrangement. To quote from his report:

"The facts can lead to but one conclusion; namely, that the chief though by no means the only cause of the wonderfully prosperous condition of the English gas industry at the present time and the extraordinary low prices enjoyed by the consumer, has been the standard Sliding Scale operating either directly upon it, or indirectly upon the companies which have not, but which have felt obliged to meet the methods introduced and the results achieved by those which have."

The City Hall—Midland Municipalities, February, 1912.

A COMMENT ON THE RECENT LEGISLATION RELATING TO PUBLIC UTILITIES

San Francisco, February 20, 1912.

Mr. W. J. Locke,

Managing Editor, Pacific Municipalities.

Dear Sir:

Complying with the request contained in your letter of the 9th inst., for a brief statement as to the position of The Pacific Telephone and Telegraph Company in connection with recent California legislation relating to public utility corporations.

The management of this Company is in hearty accord with the theory of proper control. It will aim to comply with the provisions of the new act in letter and in spirit. With the advent of the Commission in its public relations, the Company considers that it will have an added protection in its operations.

From the first this corporation has been in favor of a central, high powered, high salaried, long-term Commission, and it expresses its regret that the framers of the law, contrary to the urging of the utilities interested, saw fit to weaken the Commission and to an extent thwart the true purposes of the Act, by one-sided, elastic provisions in connection with the retention and surrender of certain powers by municipalities—this language being incorporated by the proponents of the measure with a frank acknowledgment of the correctness of the position of the utilities, but with the equally frank admission that the course taken was that required by the demands of practical politics.

Particularly in the case of the tele-

phone company should regulation be based on the broad or state-wide considerations involved. Neither the provider nor the user of the telephone service is concerned with municipal or geographical limits. An incorporated city has certain boundaries, but these are not recognized in the telephone exchange. For instance, within the corporate limits of Palo Alto there are 936 telephones; there are 1496 telephones connected with that exchange. The telephone company must construct its plant and conduct its operations with regard to the settled areas of population, present and prospective, as it finds them. Toll and exchange service are interdependent. The value of the service as a whole attracts the patron. The investment of the company is made to create this value and its entire operating efficiency is required to maintain it. This service as a whole—universal service—requires heavier construction, larger wires and cables, more complicated exchange equipment, better engineers and operators; in fact, there is added investment in the very transmitters themselves, to meet the demands upon the whole service. The entire telephone plant should be taken as a unit both as to investment and rates of return. Any classification based on municipal boundaries without regard to the whole investment and the value of the whole service to the user is arbitrary and inaccurate.

In addition, this company would have preferred that the Commission should have assumed the fullest pow-

ers for the reason that every question arising, possibly of little moment in itself, may involve all the fundamentals of telephone construction, maintenance and operation. In this connection the same knowledge acquired as to general facts and principles by a central commission, would be equally applicable in Sacramento and San Diego and would be increased, to the benefit of commission and company, by every investigation. First costs; operating methods; the depreciation of plant from wear and tear, inadequacy, obsolescence and public requirements; increased cost per station of providing service as an exchange grows; contrary to the ordinary business principle that unit costs decrease as business increases; accounting; supervision; the value and benefits of association with the parent Bell Company; necessity of advance construction; the cost of establishing and developing business; are a few of the factors which demand detailed and comprehensive investigation, and which will bear, in some degree, upon practically every question presented.

Our principal comment upon the provisions of the Act relating to stocks and bonds, is to express the regret that they were not in effect years ago, a feeling which is undoubtedly shared by investors in the securities of certain "independent" telephone companies in this state. It may be that certain conditions attached to the issuance of bonds are unduly restrictive and may operate as a check to the inflow of capital so necessary to large enterprises and the development of the state. If this is demonstrated in the slightest degree we look for immediate correction by legislative action. The Pacific Telephone and Telegraph Company has a dollar's worth of property for

every dollar of its obligations, capital or otherwise, and its financing will continue along the same lines. The public is entitled to an elimination of the evils of stock watering, unfair rebates, preferences and discrimination. The speculative promoter and the juggler of worthless securities should be placed in the same category with the porch climber and strong arm man. The Utilities Act bids fair to accomplish these results, and in its enforcement the corporation confining itself to sound principles and honest policies will only be strengthened internally and externally.

The Commission should carefully consider the proposition of competition. Telephonically considered, competition means a half service or a double price; it means annoyance, irritation and inconvenience. It means unnecessary duplication and waste. The Commission will now have the power to regulate service and rates, and where both are satisfactory, it should not allow competition at unfair rates, as any benefits are only seeming and temporary. Rates should be based upon investment and cost of service, not upon competition. Combination is inevitable and all costs must ultimately be borne by the public. Many California cities for some time have unfortunately been well qualified to testify as to the nuisance phase of competition, and recent financial disclosures, in connection with "independent" operations have demonstrated the truth of the other statements made above.

Certain sections of the Act treat of what is known as the "physical connection" of telephones. This legislation we regard as absolutely unfair and unwise. It is born of the desire of independent companies to take advantage

of the heavy investment, enterprise and comprehensiveness of service of this Company. It comes from a recognition of superior facilities and a desire to get them. This Company has constructed its plant under statutory permission, a contract being thus created which ought not to be impaired by unexpected burdens and conditions not contemplated, which lessen the efficiency of service to subscribers in contractual relations with it, and which, in fact, amount to a confiscation of its property. It has built extensive toll lines and extended its plant into sparsely settled communities to enhance the value of its system as a whole and attract patrons thereto. This is an element of its "going value," and is one of its greatest assets. The incentive to extend will be removed if it is compelled to turn this investment over to a competitor.

There is no analogy in the case of common carriers. A railroad company is bound to accept passengers and freight from other railroad companies, but it is not thereby prevented from handling its own passengers and freight at the same time, at its own convenience and under such operating methods as it sees fit. It does not disarrange its own schedules nor surrender its track and operating control. In the telephone business the whole circuit and appliances are placed under the control of the subscriber to the exclusion of everyone else. For one company to be compelled to turn over this property to the patron of another company means the delay and inconvenience of its own subscribers for whom it is maintained, no matter how urgent their needs. No compensation can be adequate for such an appropriation and interference.

The situation presents mechanical difficulties. Good service, even under one control, means the highest standard of equipment and uniformity of operating methods. This legislation involves the connection of badly constructed lines with poor insulation and imperfect joints, with well constructed carefully insulated and protected lines. It means a compulsory union by two companies of different plans, systems and ideas. The service will be that of the poorest equipment.

It is sometimes necessary in condemnation proceedings to take private property for a public use, but the justice of arbitrarily compelling one person to turn over his property to a commercial rival and to the enhancement of the value of a competitive business, in other words, the justice of taking private property for a private use, is not fully established.

Everything depends upon the personnel of the Commission. Some sections of the Act under literal construction, would seem to allow the Commission to leave the domain of regulation to enter that of management and operation, without coincident responsibility to investor, public or utility, but so far in this country, under statutes equally broad, no acute situations in this connection have arisen.

Our own corporation is owned by hundreds of shareholders, and the public service security generally is the instrument of the smaller investor. In it he looks for stability, convertability and a sure and steady return. The public is entitled to good service and reasonable rates. The utility company is entitled to rates which will enable it to maintain its plant at the highest efficiency, pay the highest wages consistent, insure reasonable and steady

returns to its security holders and attract the capital necessary in its operations.

Regulation, as we understand it, means these guarantees to the three parties involved. If it is to mean deliberate action taken upon the fullest investigation, if it is to mean indifference to political considerations and the unreasonable prejudice of ignorance and discontent, if it is to mean fair play and the square deal, regulation will be a boon to investor, citizen and corporation.

This company hopes for the opportunity of putting before the Commission the fullest information as to its methods, policies and purposes. It desires and will welcome conference and discussion. The knowledge and experience of men who have been active and continuous participants for years in the varied branches of a highly technical business will be theirs for the asking. Precedents will be created which will be followed in and out of the state, and our earnest desire is that they be founded upon complete, thorough and exhaustive investigation.

As far as this Company is concerned it has no fears as to the ultimate benefits of public control. If experiment and experience shall demonstrate that changes in the present Act are advisable, they will undoubtedly be made. We can only hope that such legislation in the future will be in the hands of men of courtesy, ability, patience and painstaking industry equal to that shown by the framers of the present and of those with whom we have had thus far to deal in connection with its preparation and final enactment.

Yours truly,

B. C. CARROLL,
General Agent The Pacific Telephone
and Telegraph Company.

TRADE NOTES

A NEW INDUSTRY FOR THIS COAST.

The Standard Corrugated Pipe Co. have added a very important factor to their plant at South San Francisco by manufacturing a genuine open hearth iron water flume.

This will in no way interfere with the manufacture of corrugated pipe, which they will continue to make, but it will necessitate their adding a new building to their present plant, and new machinery for manufacturing the water flume. The East and Middle West have been using metal water flumes for some time, but the Standard Corrugated Pipe Co. are the first ones to manufacture it on this Coast, and it is a very important matter to the power, mining and irrigations companies in this state.

Their advertisement on page 93 of this issue gives a fairly good idea of the flume, and from an engineering standpoint it seems to cover all the desirable points.

We certainly wish for the manufacturers every success.



THE CHEMICAL ENGINEER AND THE TECHNICAL PLANT.

The combination of the two units of the title heading has now reached a point when it is no longer a novelty, though it is unfortunately by no means the rule. Furthermore this combination has advanced until the chemical engineer employed to construct a plant is no longer dismissed as soon as the plant is completed, and put in good running order, but is retained in order to keep it in that condition. This necessitates the expenditure of a good sal-

ary that to the unthinking manufacturer is a foolish outlay, because there is no visible income accruing therefrom; losing sight of the fact that a good engineer is not one who can repair a breakdown in the quickest time, but one who can save the time of shut-down and repair by anticipating it.

Nor is the only value of the chemical engineer in insuring the economical operator of technical processes; his duties also include the maintenance of excellence by the laboratory control under his guidance, whereby not only the small leaks are discovered and rectified before they become more important factors, but errors of manipulation, that always creep in under the mistaken ideas of rule of thumb foremen, are discovered when they show deterioration of the finished product.

The foregoing truths were early recognized by the officers of The Barber Asphalt Paving Company, when in their organization on the Pacific Coast they appointed D. Basil W. Alexander as the Pacific Coast chemist. Mr. Alexander has been associated with hydrocarbons almost all his life, as his earliest days were passed at a gas works, where his father held an important position. He was educated in scientific subjects in the Grammar School at Manchester, England; and later at the Victoria University in the same city; and going up to the London University to take his degree. At Victoria University (then Owen's College) he sat under such men as Sir

Henry Roscoe and Dr. Schorlemmer, the latter the foremost man of his time in Organic Chemistry.

After leaving college Mr. Alexander was given the position of chemist in the gas works of Salford, a suburb of Manchester, where he had three gas works under his supervision. This experience made him familiar with the properties of gas, tar and pitch, which knowledge afterwards served him in good stead in the paving business, as knowing what not to use, and why. During his term at college Mr. Alexander became a charter member of the Society of Chemical Industry, to which he still belongs; as also to the American Society for Testing Materials, and the American Association for the Advancement of Science. He is furthermore Councillor of the Southern California Section of the American Chemical Society, and was the fourth member on the Pacific Coast to be elected to the American Institute of Chemical Engineers.

Mr. Alexander has been associated with asphalt in all its forms since the early days of its manufacture from crude petroleum in California; and having had charge of several laboratories, and direction of refineries of The Barber Asphalt Paving Company and allied concerns, besides being familiar with California Oil Fields and their products, he has earned the title that has been given him, of "Father of Asphalt," in California.

The firm of

SHIPMAN, DENNY AND RHANE
CONSULTING ENGINEERS
ATLAS BUILDING, 604 MISSION ST.
SAN FRANCISCO

*Offer to Cities contemplating the Acquisition or
Construction of Public Utilities*

***Careful Investigation of Conditions
Thorough Reports and Estimates
Adequate Designs of Undertaking
Competent Supervision of Construction***
**INSPECTION OF PREVIOUS MUNICIPAL
WORK IS INVITED**



EDITORIAL



THE NEXT CONVENTION.

The Fifteenth Annual Convention of the League will be held at the State University, September 24th to 28th, inclusive. The date was recently fixed by Mayor Wilson and the City Council of Berkeley. President Wheeler has extended a hearty invitation to make use of the University Buildings and in all probability the principal meetings will be held in the Mining Building, which is admirably adapted for such purposes, while the ground floor offers exceptional facilities for the exhibition of machinery, supplies, etc. Professor Rieber would like to have the League meet during the Summer Session, but after mature deliberation this proposition was deemed unwise.

MORE EFFICIENCY AT OUR MEETINGS.

Mr. D. Bromfield, City Engineer of San Mateo, in the course of a discussion at the recent Santa Barbara meeting, called attention to an important defect in the conduct of our meetings, the substance of which is simply this: We discuss a great many important problems but never draw any conclusions. In other words, we are like the fellow who is always taking aim but who never shoots. On the other hand it would probably be a mistake to draw conclusions without mature deliberation; nevertheless we believe it is a greater mistake never to come to a positive decision on anything, even though an error should be made occa-

sionally. A well known public character has asserted that "the only man who never makes mistakes is he who never does anything."

After a proposition has been thoroughly discussed and debated it would undoubtedly be better in many cases to adopt or reject it by formal motion or resolution, and an attempt will be made to carry out this idea to some extent at least, in making up the program for our next meeting.

THE STATE HIGHWAYS.

The people of California have voted eighteen million dollars for good roads. This is an immense sum of money and its expenditure should be attended with certain and great care, as it is the earnest wish of every public spirited citizen that when the highways are constructed the state will have something to show for its money, something substantial and enduring, something that will add to the renown and glory of our great commonwealth.

Fine highways are a great asset to any country. They are of particular benefit to the farmer, especially the fruit grower, enabling him to ship his products to market with more speed, less exertion, and without damage. Besides this, good roads in California will add greatly to the many attractions our state now offers to the motor enthusiast and the lover of outdoor life.

Naturally a strong temptation is presented to those in charge of a great work of this kind to make a big showing. Undoubtedly many unthinking

people will criticize them if the amount of work done does not come up to their expectations. However we do not think that the able men who constitute the highway commission will be at all influenced by such considerations. The caliber of the men selected justifies the belief that they will be guided largely by that ancient and well-known proverb which says that "what is worth doing at all is worth doing well."

The state highway act suggests the use of oil or oil macadam. Have the results of the many experiments made with oil constructed roads justified the adoption of this kind of pavement? We doubt it.

The cities and towns of California have done a lot of experimenting with oil macadam and other kinds of oil pavement. The results have varied widely, but in most cases they have failed to come up to expectations. The "petrolithic" pavement (so-called) proved to be a complete failure.

Oil macadam gave great promise at first, and in a few places, such as the City of Alameda, it has apparently proved successful, requiring no sprinkling and involving so far but little expense for maintenance and repairs. In other localities, however, the result has been quite different, notably in Los Angeles County, where the oil macadam highways recently constructed there at a cost of \$3,500,000 are said to be going to pieces and require reconstruction.

Whether the climate or soil has anything to do with the success or failure of oil macadam has not yet been ascertained or determined. At the Santa Cruz convention of the League of California Municipalities the engineers and street superintendents present were urged to get together and draw

up standard specifications which might be used by any municipality with confidence of thereby securing a successful result. The committee to whom the matter was referred never reached any conclusions, the members declaring that in their judgment what would be adapted for one locality would be unsuited for another.

In the east, where similar methods have been followed with the use of tar instead of oil, they have achieved no better results apparently. Mr. Cecil Nathan, a prominent road engineer of the east, speaking of this method, says: "Tar is serving its purpose as a temporary expedient, but something more permanent than the primitive methods of tar spraying or even tar macadam, is required."

In an editorial in the February number of the *Municipal World*, the official organ of the cities and towns of Canada, tar macadam pavements are commented on as follows:

During the years 1889-1905, numerous tar-macadam pavements were laid in seven cities of the Province, aggregating about twenty-five miles. Except in the City of Guelph, the use of commercial coal tar has been displaced by refined tar, or other proprietary bitumens. The general experience was that for the first three years the surface has been satisfactory; in five years, the surface coat, if not renewed, was worn away in spots; at the end of ten years, the surface was generally rough and disintegrated, but still protected the foundation. In Hamilton and Toronto, the tar macadam, after five or ten years, has been protected by a wearing surface of sheet asphalt, from one to two inches in thickness.

Everyone will admit that the best pavement for the state highways is one which would enable the greatest amount of use and satisfaction for the least amount of expenditure. And in calculating expenditure, we must not lose sight of maintenance and repairs and consider first cost only. The best highway engineers of the country are

unanimously of the opinion that entirely too much consideration has been given to first cost. In regard to this feature of pavement construction it is interesting to refer to the remarks of Mr. R. M. Morton, engineer of the Highway Commission of San Joaquin County, in his paper delivered before the League of California Municipalities on the subject of "Substantial Pavements for Streets and Highways." In the course of his address Mr. Morton said:

Essentially, the idea of pavement construction is one of reducing cost of maintenance. Even a natural earth road can be kept in good condition, if it receives sufficient maintenance. Pavements are constructed in order to reduce this expense to a minimum.

Mr. Finkle, a prominent engineer of Los Angeles, who participated in the discussion which followed the submission of this paper, had this to say in regard to first cost:

The first cost is not the only consideration. In fact, it is really one of the minor considerations. Because, if you have a foundation which never gives trouble in the future, and only have to keep the wearing surface in repair, your expense of maintenance is going to be very low, and not only that, but the comfort to the public is going to be very great.

Mr. Arthur H. Blanchard, M. Am. Soc. C. E., Professor of Highway Engineering, Columbia University, New York, has proved by mathematical calculation that first cost should have but little consideration in estimating the value of a pavement. In a paper before the American Association for Highway Improvement, Richmond, Va., he said:

In another case coming under the writer's observation, it was decided to first construct a water bound macadam and afterwards provide a bituminous surface by superficial treatment. The annual cost of

a bituminous concrete pavement, finished with a flush coat, which, under the traffic to, which this road was subjected, would last 5 years, will be investigated for comparison. Granted that it will be necessary to reconstruct both roads by replacing the wearing surface of 2 ins. every 20 years, the annual cost may be compared as follows: For the road given a superficial treatment annually, the first cost was 67 cts.; the interest charge at 4 per cent., was 2.7 cts.; the maintenance charge 7 cts.; composed of a 5 ct. charge for annual bituminous treatment and 2 cts. for repairs, and the annuity, based upon the cost of reconstruction, was 0.9 cts. Hence, the annual cost was 10.6 cts. In the case of the bituminous pavement the first cost, under the existing local conditions, would be 90 cts.; the interest charge, 3.6 cts.; the maintenance, 2.5 cts., made up of a repair charge of 0.5 cts., and the cost of the flush coat, having a life of 5 years distributed throughout this period, of 2 cts.; and the annuity, 1.7 cts. This would make the annual cost 7.8 cts., as compared with the annual cost of the superficial treatment of 10.6 cts. per sq. yd. It will be noted that the annuity covering total reconstruction is not considered in this case. In the opinion of the writer the advantage would be with the bituminous pavement.

The state highway act says among other things "the highway constructed under this act shall be **permanent** in character, etc.," therefore, in order to comply with this provision, the most durable material should be used at least for the foundation or base of the pavement, for like all other structures the permanency of a road depends largely upon its foundation.

In the address of Mr. Morton afore-said, referring to this phase of the question, he stated that cement concrete was the only suitable material for constructing the base or foundation of a **permanent** pavement. In this he was also indorsed by Mr. Finkle, who said:

The suggestion of Mr. Morton to use a concrete base is undoubtedly a most excellent one. I think in no other way will you get an absolutely perfect road, because the foundation is there and will be there for all times, and the wearing surface can be attached and renewed. I personally built some roads of that kind in San Bernardino County in 1889. The wearing surface has from time to time been renewed on those roads, but the foundation is there and the foundation in that case being 6 inches of hydraulic Portland concrete—4 inches will do in exceptional cases where you have a light traffic, but in the majority of cases, where the soil is of the ordinary kind and the traffic heavy, I believe that six inches should be used.

It is also interesting to note in this connection the opinion of Mr. J. C. Ralston, M.Am. Soc. C. E., City Engineer of Spokane, Washington, who recently visited many of the large cities of the country by orders of his city council, to investigate the pavement question and report on the best methods in use. In that portion of his report referring to a road foundation, Mr. Ralston said:

The cause of much of the deterioration in asphalt surfaces and other pavements is due to neglect of such precautions in regulating the sub-grade, or in providing a foundation of a character to bridge over defects in the latter.

Foundations of most varied character have been used in the construction of pavements, but universal practice, the results of extensive experiment, has proven that concrete made of hydraulic Portland cement, of the proper thickness and mix, constitutes the only proper foundation upon which any pavement should be laid.

The so-called bituminous foundation, wherein asphalt or bitumen is used as a substitute for hydraulic cement, possesses no advantage save, in some cases, that of economy. It has been almost entirely abandoned as a support for asphalt surfaces. It is a relic of the days when hydraulic cement was a much more expensive article than at the present time. The

coating of bitumen applied to the surface of the foundation is of little or no advantage. Enough cannot be used to fill the voids in the broken stone, as, if this is done, the excess will be drawn up into the surface by the hot sun and destroyed or soften the latter, while the cost would also be prohibitive.

Additional disadvantages of such a foundation (bituminous concrete instead of hydraulic cement concrete) are that it possesses no rigidity nor stability, and consequently responds at once to any settlement or weakness of the sub-soil.

In regard to a wearing surface it is generally conceded that those which have proved permanent in character and satisfactory in other respects are limited to about three varieties, namely, asphalt, bitulithic and vitrified brick. Asphalt is too well known to require any description. Bitulithic pavement is constructed of hard stones cemented together with asphalt and graded so as to contain the least possible amount of voids. A large amount of this pavement has been laid in Oregon and Washington, but its introduction to California is comparatively of recent date. Wilshire Boulevard, Los Angeles, and some of the principal streets of Hermosa Beach were recently improved with this pavement. Orange Grove Avenue, Pasadena, renowned for the number of its millionaire residents, was also paved with bitulithic recently. Vitrified brick makes an admirable wearing surface and is used extensively in the east. It is more expensive than asphalt or bitulithic, and the lack of material for its manufacture here in California places it out of consideration.

A good wearing surface, like a good foundation, is naturally more expensive at the outset. But if the question of expense is calculated to include

maintenance and repairs and embrace a period of twenty or twenty-five years, the figures would undoubtedly show that the best methods are the most economical; and moreover, during all that period the users would enjoy the superior advantages which are afforded by a hard, smooth surface.

One of these advantages and one which should constitute an important factor in determining this question is the low traction resistance afforded by a hard, smooth pavement. This is an important matter, yet unfortunately it has been given hardly any consideration.

It has been demonstrated, for instance, that on a good hard pavement a horse can easily pull a load, which he cannot budge on an inferior or soft pavement; and one of the commonest defects in oil pavement is its tendency to soften in warm weather, and thereby increase the traction resistance and cause the surface to creep and get wavy. It seems that every consideration in constructing the state highways calls for solidity and permanency, and "quality" as against "quantity," otherwise the expense for maintenance and repairs would become a heavy burden within a few years.

TRADE NOTES

KNOX FIRE ENGINE DOES FINE WORK.

(Richmond, Va.) During the Binswanger fire last night one of the finest features of the fire fighting was the efficient services rendered by the new Knox fire engine, which was stationed on Sixth street just below the annex of the factory. For over ten hours—from 5:58 o'clock last evening until 4:30 o'clock this morning—this new monster engine worked without losing a stroke, maintaining unbroken the

two best streams that were placed on the building. It was worth nearly as much as all the other engines put together.

The fire engine experienced no trouble whatever from the fact that most of the streets were covered with ice and exceedingly slippery.

THE VALUE OF GOOD ROADS.

Californians are being gradually educated to the importance of good roads, and some day we probably shall have the best in the country. We have a state and county and private organizations all working to further the building of the right kind of roads, but so far we have not made much of a start. The Legislature has authorized the issue of \$18,000,000 of bonds for the purpose of improving and building highways, and when this money is spent we shall have much better roads. San Mateo county expects to raise \$1,500,000 to be employed on four main roads on the peninsula, and a number of other counties in the state are taking similar action.

One important advantage of good roads which is not generally recognized is the bearing they have on the cost of living. The poor public highway adds enormously to the price of almost everything we buy. It has been estimated by government statisticians that during last year products of the farm aggregating about 200,000,000 tons were hauled an average distance of nine miles at an average cost of 23 cents a ton a mile, a total of \$414,000,000. The average cost of hauling one ton a mile in European countries is less than 10 cents. If, therefore, our farm products could be hauled as cheaply as in Europe—which means if we had as good roads as they have there—we should make a saving of \$234,000,000.

To do their hauling now, it has been

estimated American farmers require about 25,000,000 draft horses, worth over \$2,000,000,000. With first-class roads, it is probable that not more than half this number would be needed. It is easy to see that the saving here would in a few years provide the best of roads throughout the country.

What is necessary to obtain good roads is the awakening of a greater public interest in the subject. This awakening is taking place, but not with sufficient rapidity. There has been a project mooted for some time of a Pacific Coast highway to run from the Canadian border to the Panama canal. A few influential citizens of San Francisco, of Portland, Seattle and other coast cities have worked to further the movement, but as yet no real beginning has been made. It would be a great thing for all the coast section if the exposition of 1915 could also celebrate the opening of this highway.

But apart from great highway projects such as this and some that are being discussed in the East—the Montreal-to-Florida highway and the Buffalo-New Orleans project, for instance—an infinite amount of good would result to all classes by a bettering of our public roads, which form the transportation links between the farmers and gardeners and the railroads. Too many of our public roads are now both unpleasant to travel over and a costly means of shipment.—S. F. Chronicle.

RECENT LEGISLATION OF SPECIAL INTEREST TO MUNICIPALITIES

**Passed at the Special Session Recently
Convened, and Approved by
the Governor**

Chapter 12, Assembly Bill 41 (Randall), amending Section 1 of an act approved April 22, 1909, providing for the acquisition by municipalities of land for public parks, or public playgrounds purposes by condemnation, etc., so as to extend its operation for the acquirement of land for public library purposes. Approved December

23, 1911.

Chapter 13, Senate Bill 3 (Hare), Amending Section 1280, Political Code, relating to the official canvass of election returns. Approved December 23, 1911.

Chapter 19, Assembly Bill 73. (Committee on Conservation), Amending Sections 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 17, 19, 20, 22, 24, 27 and 28 of an act approved May 1, 1911, providing for the incorporation and organization and management of municipal water districts; repealing Sections 16, 21 and 31 thereof, and adding thereto Section 29 (new), relating to the county clerk and registrar of voters; Section 30 (new), relating to the continuance of proceedings heretofore commenced under said act, and Section 31 (new), amending title of said act to read as follows: "An act to provide for the incorporation and organization and management of municipal water districts, and to provide for the acquisition or construction by said districts of water works, and for the acquisition of all property necessary therefor, and also to provide for the distribution and sale of water by said districts." Approved December 24, 1911.

Chapter 23, Senate Bill 24 (Cutten), Amending Section 1 of an act approved April 26, 1911, appropriating money for the purpose of payment of that part of the principal and interest of any bonded indebtedness created and outstanding by any city, city and county, county, town, township or district, on the eighth day of November in the year one thousand nine hundred and ten, which is provided in Section 14 of Article 13 of the Constitution of this state and as provided in an act of the 39th session of the Legislature entitled, "An act to carry into effect the provisions of Section 14 of Article 13 of the Constitution of the State of California as said Constitution was amended November 8, 1910, providing for the separation of state from local taxation, and providing for the taxation of public service and other corporations for the benefit of the state, all relating to revenue and taxation." Approved December 24, 1911.



Q When a man feels the necessity of being in two places at the same time he goes to the nearest telephone and sends his voice. It is not exactly the same thing but when a man talks hundreds of miles in opposite directions from the same Bell Telephone, it is about as good. In the daily use of the telephone a man travels all over town by wire in a few minutes. It is just as easy to travel all over the state and other states by means of the universal Long Distance Service of the Bell System.



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QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry.

QUES. We have recently commenced mandamus proceedings on behalf of N. H. Hosmer, Street Superintendent of the City of Sierra Madre, to compel the City Treasurer of that city to honor certain warrants issued to Mr. Hosmer for his services as Street Superintendent.

At the time of Mr. Hosmer's appointment as Street Superintendent he was a member of the Board of Trustees of the city above mentioned, and has ever since continued to act as such, and to fill both offices.

We have been referred, by Mayor Jones of Sierra Madre, to the issue of "Pacific Municipalities" of April 29, 1911, wherein, on page 117, you make answer to certain inquiries regarding the very point which is now before our Superior Court in the Hosmer case. We

have no doubt that you are anxious to see your opinion, as expressed in the aforementioned issue of your journal, sustained, and it has occurred to us that you may know of some recent decisions of the Superior Courts of some of the counties of this state upon the point herein involved. We agree with you in your conclusion, and hope that the Court will decide with us upon it. We understand that it is upon the ground of public policy that the other side are objecting to Hosmer's claim, contending that public policy prohibits a man from holding two offices in the same municipality at the same time. Any assistance which you can give us in the matter will be very much appreciated.

ANS. The question was presented to the Department of City Attorneys at the

recent convention in Santa Barbara, and the attorneys reported that they could not "agree on the law and recommended a test case by a summary proceeding, such as enjoining the payment of a salary warrant."

We are unable to refer you to any recent decisions of any of our Superior Courts upon the point herein involved. As you probably know, it was held in the case of the People vs. Provines, 34 Cal. 533 and 538 that Sec. 1 of Article 3 of the Constitution did not apply to municipal governments. The latter part of Sec. 6 of Article XI of the Constitution says, "cities and towns heretofore or hereafter organized, * * * except in municipal affairs, shall be subject to and controlled by general laws". It was held in the case of Coffee vs. the Superior Court, 147 Cal. 525, that the removal of municipal officers is a municipal affair, from which it might be deducted that the consolidation of municipal offices was also a municipal affair; anyhow, there is nothing in the general laws prohibiting a member of the board of trustees from holding the office of street superintendent. Therefore, in view of the decision in the case of the People vs. Provines, 34 Cal. 533 (above cited) wherein it was held that Sec. 1 of Article 3 of the Constitution did not apply to the government of municipalities, and inasmuch as this is a municipal affair and not forbidden by general laws, it would appear to us that the board of trustees of Sierra Madre could lawfully appoint one of their members to the office of street superintendent who might still retain the office of trustee. The justification for such action is upheld by the recent amendment to the Municipal Corporations Bill (Sec. 852a), which expressly authorizes the establishment of commission government for cities of the

6th class, and which is in complete accord with advanced thought along these lines.

We herewith submit the quotation from a recent decision in an Arkansas case reported in 133 S. W. 1126. The title of the case is McDonald vs. Improvement District, and the court said "it is no objection to the eligibility of a commissioner of an improvement district, that he was a member of the city council when he was appointed, the duties of the two offices not being antagonistic".

Trusting you will be successful and advise us of the decision of the court, we remain, etc.

QUES. A question arises here with reference to the removal of trees which extend into the curb line, and so far as I am able to ascertain the authorities are somewhat meagre on the proposition. As a matter of policy, what is the usual course pursued in these matters, or do you know of any case which has arisen wherein the authorities have been prevented from removing trees which are in the curb line?

Concretely the proposition to which I especially refer is this: If the tree is not an obstruction to travel, but if permitted to remain, there would be a gap in the concrete work; is this such a departure from detail as that any question could arise concerning the proper performance of the work?

While I anticipate no trouble in the present instance the probabilities are that numerous parallel cases will arise and it is as much a question of policy perhaps as law. I would greatly appreciate any information you may be able to give in the matter.

ANS. There is probably no question as to the authority of a city to order a tree removed when it is an obstruction to a street or interferes with its improvement. We know of no instance where a city has been enjoined from so doing.

As you say, the matter is largely one of policy. The wise policy is that trees be considered a valuable asset to the town and be preserved if possible. When

in the curb line, the curb and gutter should be extended around them, and the engineer can usually plan to do this. The extra cost should be paid by the property owner whose tree is saved, and he is usually glad to do this in order to so save it. As a policy it would even be better for the city to pay this extra cost than to destroy the tree or render a street assessment of doubtful validity. In case a whole block of trees is in the curb line, then it would be wise to widen the sidewalk space and set the curb farther out.

QUES. Gentlemen: I wish that you would kindly give me your ideas on the proposition of a municipality surrendering to the State Railroad Commission its power to regulate public utility corporations, and oblige.

ANS. Yours of 22nd in relation to regulation of public utility corporations is at hand.

As to the advisability of a municipality surrendering its rate fixing power to the Railroad Commission, we are inclined to think that it will depend largely upon local conditions. For example—we have recently advised a small town to surrender its power to fix water rates to the State Railroad Commission, the reason being that last year when it fixed rates the corporation commenced a suit to enjoin the enforcement of the ordinance fixing such rates. It would cost more for the town to defend the suit than the amount involved in the controversy.

So when a city has inadequate means for ascertaining the value of the property as a basis of fixing rates, or for any reason the matter becomes complex, we would recommend the surrender of such powers to the Railroad Commission.

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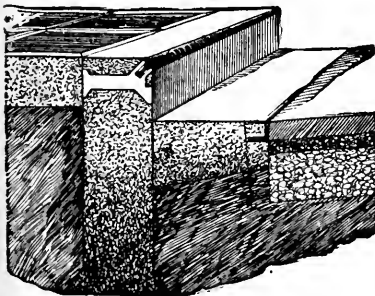
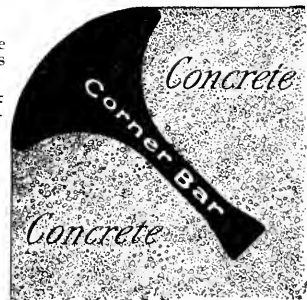
Architects are invited to read pages 242 and 243 "Sweet's Index."

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rates is a very complex matter, as it is usually involved in questions of interurban and suburban service. Few municipalities can afford to undertake and finance such technical investigation as is necessary to the fixing a rate that will be upheld by the courts.

The same condition will be frequently found in connection with the water and lighting service.

On the other hand we would deprecate a wholesale surrender of these rate-fixing powers, because the fear that the sudden imposition of these duties would "swamp" the Railroad Commission and would result in the commission finding itself incapable of reaching satisfactory conclusions.

We do not think, however, that many cities will immediately avail themselves of the privilege of surrendering their powers, and we see no objections to a municipality here and there "trying out" the experiment.

Therefore, if your local conditions are at all complicated, we would recommend the surrender of your power as to one service first, and if the Railroad Commission handles this conferred power promptly and satisfactorily, further grants will not only be made by your city but by others.

QUES. Have been looking over your answers to the different questions and find a couple with which I cannot agree. I believe that if you will investigate the law you will find that Sec. 56 of the Vrooman Act was specifically held unconstitutional by the Los Angeles District Court of Appeal.

As to the fees due the marshal being the same as those of a constable I think that you will find that if there were any fees provided by law for constables at the time the law or ordinance was passed that such law (for fees) became a part of the subsequent law or ordinance. It has been so held several times with reference to the provisions of the Charter for cities found in the latter sections of the Po-

litical Code, especially where a Charter adopted certain provisions of the general Charter found there. There is a case in point where a Charter of Marysville was in question, but I do not recollect the name of it.

ANS. Yours of Feb. 3rd duly received, for which accept our sincere thanks. Replying thereto, will say that the validity of Sec. 56 of the Vrooman Act was incidentally questioned by the Court of Appeals in the case of Los Angeles vs Lelande, 11 Cal. App. 304, by the use of this language, "it appears to be conceded that the Act (Mar. 18) adding a new section (56) to the Vrooman Act is unconstitutional". The validity of this section was not in question before the court, however, and in view of the authorities cited by us, we doubt very much if the court would so decide. There may be some question whether or not such a charge is a lien on the property, but the West Virginia case cited says the council has the right to "assess the amount of such expense on the owners". Wilson vs. Town of Pillippi, 39 W. Va. 75, 19 S. E. 533.

As to the fees due the marshal being the same as those of the constable, we are inclined to think there is a difference between a specific statute and a reference in a general way. In the case of the People vs. Whipple, 47 Cal. 592, a statute was sustained which referred to another act specifically, and it was held that the legal effect of such reference is the same as though the act it referred to had been inserted therein in *extenso*. In the case in question, however, in referring to the fees of marshal there is no reference to any specific act, but it says "receive the same fees as constable". Had reference been made to the fees of constable as provided by some specific act, it would probably be held to have the same legal effect by such reference as though said act had been inserted there in *extenso*.

QUES. I notice in the proceedings of the recent Convention held in Santa Barbara quite a lengthy discussion on fire ordinances for small towns. I have attempted to draft an Ordinance along some of the lines in the discussion, but I have come to the conclusion that it would be better to get a sample Ordinance therein referred to.

ANS. We have received the draft of a model ordinance from the Board of Fire Underwriters of the Pacific, which has been submitted to a committee of eight city attorneys for the purpose of receiving their suggestions thereon. A meeting of that committee will be held March 2nd in the League Headquarters to take action on this ordinance, and as soon as they have done so we will send you a copy. The approved ordinance will be published in "Pacific Municipalities."



WHAT THE CITIES ARE DOING

Angels' Camp has incorporated.

Jackson is doing a lot of sewer work.

Pasadena will spend \$60,000 for a garbage incinerator.

Oakland is making extensive sewer improvements.

Redondo Beach is doing considerable sidewalk work.

Sonoma citizens are using the initiative on a saloon ordinance.

Antioch will commence extensive street improvements at once.

Napa officials are proposing to do more street paving very soon.

Chico has advertised for 3,000 tons of rock for the city streets.

Pittsburg is installing the Tungsten system of electric lighting.

Boulder Creek citizens, in mass meeting assembled, have decided to macadamize the main streets and make other needed improvements.

Vallejo officials are planning fifty more blocks of street paving.

Grass Valley citizens advocate the purchase of a new auto fire truck.

Oxnard trustees have petitioned for the installation of more fire hydrants.

Woodland has ordered the construction of many blocks of cement sidewalks.

Los Banos trustees are ordering the construction of more cement sidewalks.

Berkeley will soon get busy on the construction of a garbage incinerator.

Piedmont has plans for establishing three play grounds costing about \$180,000.

Sacramento citizens have started a referendum petition to thwart saloon ordinance.

Riverside citizens are petitioning for the acquisition of the Home Telephone system.

Ventura citizens are threatening to use the referendum in relation to the liquor ordinance.

Alturas. Work on the new \$33,000 municipal water plant will be completed within 60 days.

San Anselmo citizens have decided upon a bond issue of \$35,000 for additional street improvements.

Long Beach will soon vote on a proposition to issue \$90,000 bonds for three new school houses.

Blue Lake will hold a bond election in March 11, to vote on the proposition to secure a municipal water works.

Sausalito trustees have passed a resolution declaring for a bond issue of \$100,000 for a roadway through the town.

Modesto officials have ordered street paving work on K and I streets, which will cost in the neighborhood of \$15,000.

Selma trustees have decided to hold a bond election on two propositions, one for \$6,500 for park purposes, and \$8,500 for fire protection.

Tracy trustees decide on a bond issue for street improvements; they favor a pavement composed of a concrete base and asphalt wearing surface. A bond election will be called shortly.

Corning. The new water system just completed at a cost of \$40,500, proves to be a complete success.

Venice trustees, or rather three of them, are threatened with recall for having granted a saloon license.

St. Helena trustees are threatened with the recall for awarding a contract for five blocks of street paving.

Modesto will soon vote on a proposition to bond the city to the extent of \$85,000 for a municipal water plant.

Modesto. A petition is being circulated to recall all the Council on the ground that they failed to suppress the tenderloin.

Roseville will have a municipal lighting plant and procure its power from the Great Western Power Co. for 1½ cents per kilowatt.

Fairfield citizens have used the referendum on a franchise ordinance recently passed. The fair sex were conspicuous on the petition.

Oroville has commenced legal proceedings for paving twenty-two blocks of its business streets; the work will be of a substantial nature.

Red Bluff citizens have petitioned the trustees to call a bond election for the purpose of constructing a municipal water and lighting plant.

Vallejo has employed William Dolge, the well-known expert and specialist on municipal accounting to install a new system of accounting for that city.

Sacramento officials are considering a bond issue for the erection of a municipal building to house the city prison, hospital, court and police headquarters.

Hemet has voted \$30,000 bonds for sewers. A feature of the election was the activity of the women voters, who practically favored the proposition unanimously.

San Jose citizens, members of the Chamber of Commerce, recently waited upon the Mayor and City Council and urged a campaign for paving all the main streets of the city.

Hillsborough trustees are about to start bond proceedings for street improvements which will cost approximately \$115,000, and also for \$15,000 for fire department equipment.

South Pasadena trustees have started proceedings for the improvement of Huntington Boulevard with an asphalt concrete pavement, which will cost approximately \$85,000.

Berkeley citizens are circulating a petition to recall the directors of the Board of Education for attempting to remove a school superintendent, without just cause it is alleged.

Palo Alto has started bond proceedings for the following improvements:

\$120,000 for fireproof building for the municipal light and water plant.

\$12,500 for a 100 kilowatt turbo-generator.

\$3,500 for an oil pipe line.

\$18,000 for a street improvement plant;

and \$3,000 for the purchase of a lot.

Lindsay's sewer system and disposal works will probably be completed on or about April 1st, 1912. The citizens are looking forward to this event as marking the advent of a new era, inasmuch as the unhygienic conditions reeking with epidemic which have prevailed for the past few years will have then been wiped out, especially so with the stringent regulations of the health and sewer ordinance.

The city is also advertising for bids for the extension of the recently acquired Municipal Water System, which since having been placed entirely upon a meter basis, is working out very satisfactorily.

The coming election promises to be a very lively one, owing to the "wet," "dry" and progressive factions which will be represented.



Mention "Pacific Municipalities" when writing for catalogs.

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

Write for Catalogs. Mention Pacific Municipalities When Writing

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S. F.

Asphalt Machinery

A. L. Young M'chy Co., 26-28 Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Arch. Terra Cotta

Gladding, McBean & Co., Crocker Bldg, S. F.
Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Automobile Public Service Wagons

American La France Fire Eng. Co., 660 Mission St., S. F.
Gorham Eng. & Fire App. Co., 48 Fremont St. S. F.
Webb Motor Fire Apparatus Co., 550 Montgomery St., S. F.

Bells

W. T. Garratt & Co., 277-279 Fremont St, S. F.

Bitulithic Pavement

Warren Brothers Company, Los Angeles, Cal.

Blue Prints

So. Cal. Blue Print & Supply Co., 800 American Bank Bldg., Los Angeles.

Concrete Construction

Esterly Con. Co., Inc., 717 Market St., S. F.

Concrete Mixers

Barber Asphalt Paving Co., S. F. & L. A.

Constructing Engineers

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.
American Engineering Corporation, 57 Post St., S. F.
Stephen E. Kieffer, 1st Natl. Bank, Oakland
Nelson & Piper, 618 Mchts Trust Bldg., L. A.
Roberts & Dennicke, Sheldon Bldg., S. F.

Culverts

Cal. Corrugated Culvert Co., Los Angeles and W. Berkeley
Standard Corrugated Pipe Co., S. F. & L. A.
U. S. Pipe Co., S. F.

Dump Carts and Wagons

A. L. Young M'chy Co., 26-28 Fremont St., S. F.
Watson Wagon Co., Canastota, N. Y.

Electrical Plants & Machinery

A. L. Young M'chy Co., Fremont St., S. F.

Engravers and Bond Printers

A. Carlisle & Co., 251 Bush St., S. F.
Sierra Art Eng. Co., Front & Com. Sts., S. F.

Engineers' Supplies

W. T. Garratt & Co., 277-279 Fremont St, S. F.

Fire Department Equipment

Gorham Eng. & Fire App. Co., 48 Fremont St. S.

Fire Engines

Gorham Eng & Fire App Co., 48 Fremont St S. F.

Fire Hose

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.
Gorham Eng & Fire App Co., 48 Fremont St S. F.
The Gutta Percha & Rubber Mfg. Co., 34 Fremont St., S. F.
The Diamond Rubber Co.
Eureka Fire Hose Mfg. Co., 54-58 Fremont St., S. F.
Bowers Rubber Works, San Francisco

Fire and Police Boats

Gorham Eng. & Fire App. Co., 48 Fremont St. S. F.

Fire Pumps

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Gasoline Engines

Gorham Eng. & Fire App. Co., 48 Fremont St. S. F.

Hydrants

Water Works Supply Co., Monadnock Bldg., S. F.

Inspections and Tests

Robt. W. Hunt & Co., 418 Montgomery, S. F

Machine Works

W. T. Garratt & Co., 227-229 Fremont St, S. F.

Municipal Accountant

William Dolge, C. P. A., 311 California St., S. F.

Municipal Castings

Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Pacific Foundry Co., 18th & Harrison, S. F.

Municipal Engineers

Sloan & Robson, Nevada Bank Bldg, S. F.
Roberts & Denicke, 461 Market St., S. F.

Municipal Printers

A. Carlisle & Co., 251-253 Bush St., S. F.

Municipal Water Works

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Office Furniture

H. S. Crocker Co., 674 Mission St.

Packings

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Pavement Materials

Barber Asphalt Paving Co., S. F. and L. A.
Warren Brothers Company, Los Angeles, Cal.

Pipes

U. S. Iron Pipe & Foundry Co., 701 Monadnock Bldg., S. F.

Pumping Machinery & Supplies

W. T. Garratt & Co., 277-279 Fremont St, S. F.
Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Water Works Supply Co., Monadnock Bldg., S. F.

LIST OF RESPONSIBLE FIRMS—Continued**Playground Apparatus**

A. L. Young Machinery Co., S. F.

Road Machinery

The Good Roads Mach'y Co., Ft. Wayne, Ind.

A. L. Young M'chy Co., Fremont St., S. F.

Barber Asphalt Paving Co., S. F. & L. A.

Roofing

Barber Asphalt Paving Co., S. F. and L. A.

Rubber Goods

Gorham-Revere Rubber Co., 50-60 Fremont

St., S. F.; 1237 S. Olive St., Los Angeles.

The Diamond Rubber Co.

Bowers Rubber Works, San Francisco

Sanitation Expert

Harold Farnsworth Gray, Berkeley, Cal.

Scrapers

A. L. Young M'chy Co., Fremont St., S. F.

Septic Tanks

Pacific Flush Tank Co., Chicago.

Sewage Pumps

Geo. E. Dow Pumping Engine Co., S. F. & L. A.

Sewer (Concrete)

Esterly Con. Co., Inc., 717 Market St., S. F.

Sewer Fittings

Pacific Foundry Co., 18th & Harrison, S. F.

Pacific Flush Tank Co., Chicago.

Sewer Pipe and Terra Cotta

Gladding, McBean & Co., Crocker Bldg., S. F.

Steiger Terra Cotta Co., Mills Bldg., S. F.

N. Clark & Sons, 112-116 Natoma St., S. F.

Sewer Systems

Sloan & Robson, Nevada Bank Bldg., S. F.

Street Sweepers

A. L. Young M'chy Co., Fremont St., S. F.

Suction Hose

Gorham-Revere Rubber Co., 50-60 Fremont

St., S. F.; 1237 S. Olive St., Los Angeles.

Water Meters

Neptune Meter Co., S. F. & L. A.

Water Works Supply Co., Monadnock Bldg., S. F.

Water Works Equipment

Water Works Supply Co., Monadnock Bldg., S. F.

Geo. E. Dow Pumping Engine Co., S. F. & L. A.

Wires

John A. Roebling's Sons Co., S. F.

Water Works Supply Co., Monadnock Bldg., S. F.

Valves

Water Works Supply Co., Monadnock Bldg., S. F.

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Sidewalks (Cement)

Esterly Con. Co., Inc., 717 Market St., S. F.

Steel Protected Concrete Co., Phila., Pa.

Street Signs

A. L. Young Mch. Co., S. F.

California Metal Enameling Co., Bairdstown, L. A.

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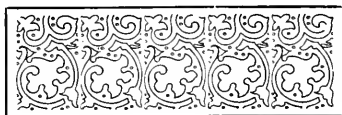
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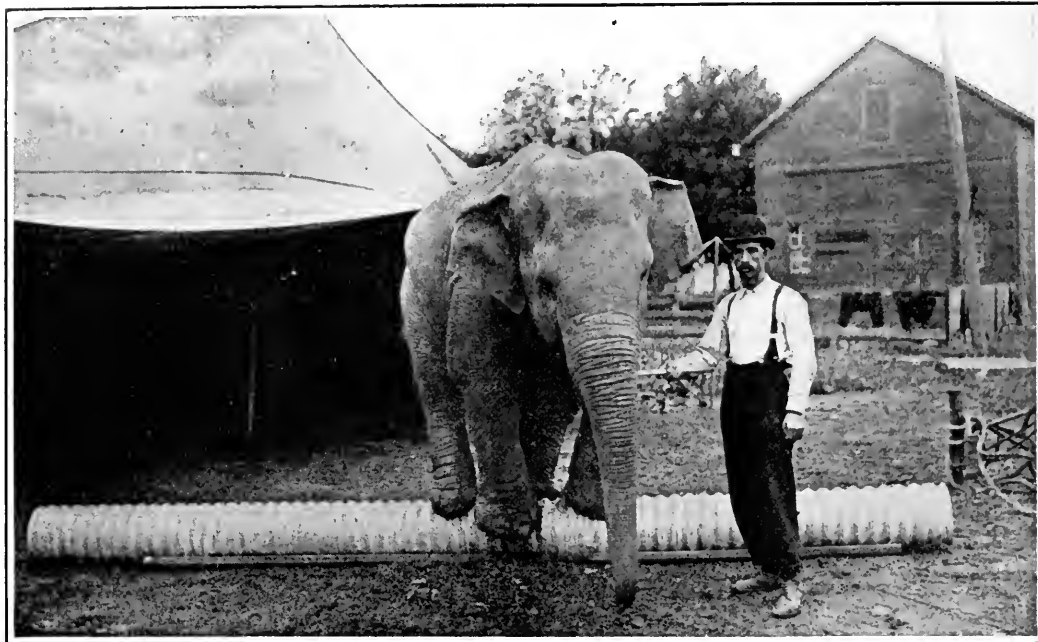


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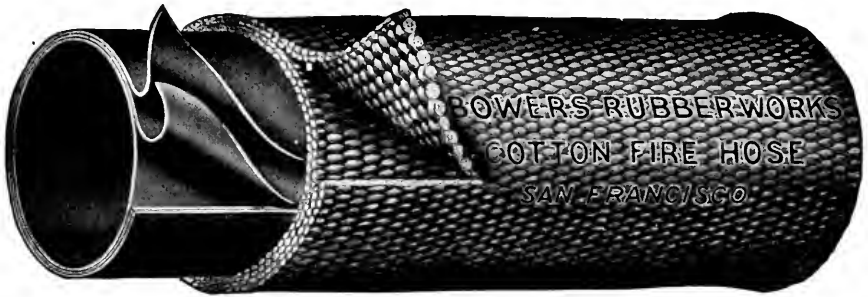
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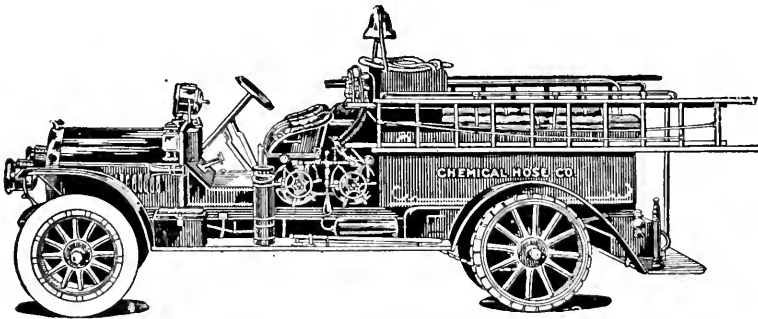
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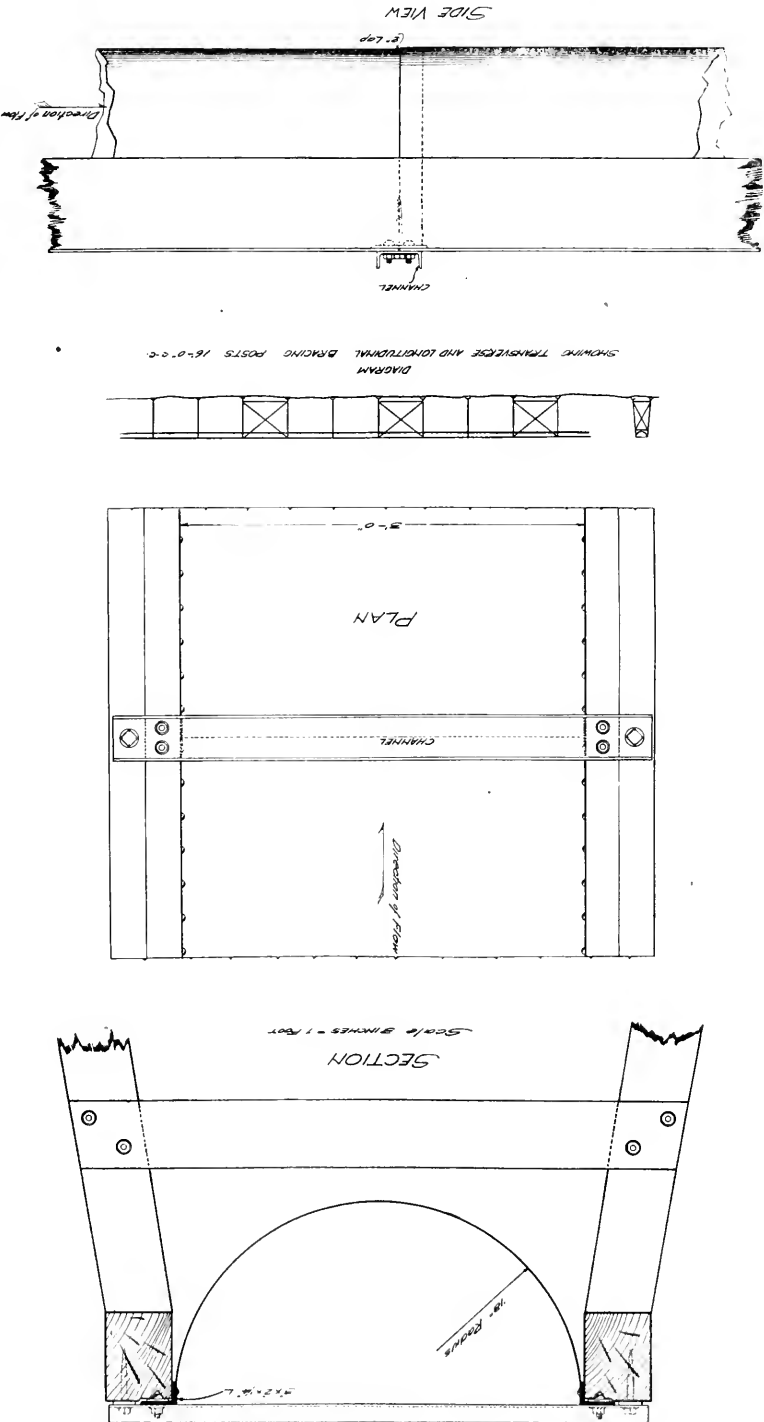
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Extract from the San Bernardino Daily Sun, Tuesday, January 9, 1912

CITY ACCEPTS NEW PUMPING PLANT

*Perris Well No. One Now
Is Ready for Duty,
Machinery Being
Perfect*

Last night the Board of Water Commissioners formally accepted the motor and pumps installed by the George E. Dow Pumping Engine Company, of San Francisco and Los Angeles, for Well No. 1, at the Perris Hill reservoir tract, the report of Engineer W. L. Brown, who represented the commission, showing that in every particular the machinery was up to all contract specifications, the company having made good in every detail of the undertaking, and having the best of the official test in the showing made on cost of operation, which was well within the contract guarantee.

The report of Engineer Brown follows:

To the Hon. Board of Water Commissioners of the city of San Bernardino:

Gentlemen: At the request and under instructions of the Superintendent, I represented your Commission at the

test runs made by the new motor and pump installations recently completed by the George E. Dow Pumping Engine Company of San Francisco and Los Angeles, at Perris Heights wells.

A twenty-four hour run was made and all necessary measurements of power consumed, flow, pressures, etc., were taken.

The water from the vertical pumps in wells was measured over a sixty-inch iron plate weir, while the discharge from the two-stage pumps from the weir box was measured over a sixty-inch wooden weir.

The reservoir on Perris Heights not yet being completed, the gate beyond the two-stage pump was closed until the pressure gauge read sixty-eight pounds, or until the pressure was equivalent to 156.5 feet,—a trifle more than the elevation of reservoir above pumps.

A Bit of Record.

Power was turned on at 10:20 a. m., January 2, 1912, and the following data recorded:

Total water delivered by vertical pump in 24 hours from Well No. 1, 1,966,200 gallons.

Total lift in feet 72.5.

Total water delivered by two-stage pump in 24 hours, 1,950,898 gallons.

Total lift in feet, 156.5.

Total power consumed by both pumps in 24 hours, 2345.49 KW.

Average per hour for run, 97.73 KW.

Or, combining both pumps, we get 1360.05 gallons per minute, the equivalent of 151.1 miner's inches of water elevated 229 feet at a cost of \$1.446 per hour for power.

Throughout the entire run all moving parts and bearings ran true and cool. No defects in either material or workmanship were noted.

From a study of the above data it will be seen that the installation of the Dow pumps have met contract requirements, both in duty and cost, with a good margin of safety.

Respectfully submitted,

WILL L. BROWN,
Engineer.

We can give your city equal service

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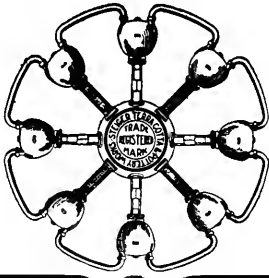
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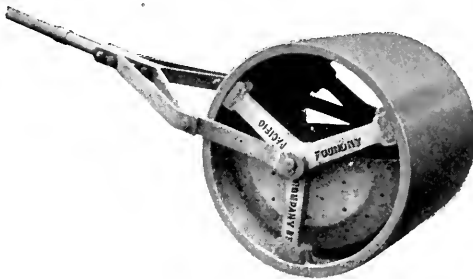
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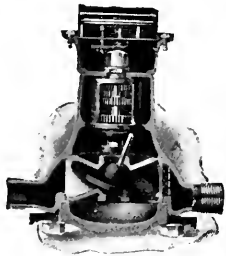
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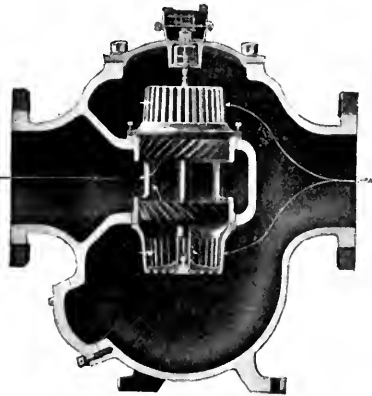
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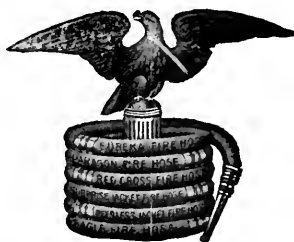
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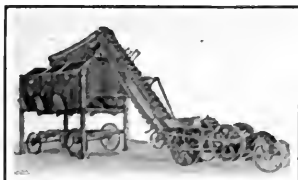
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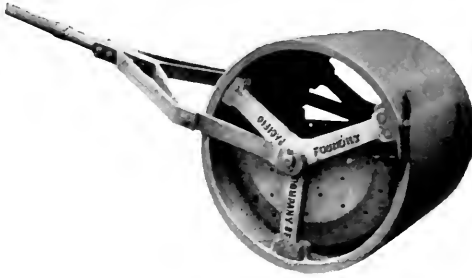
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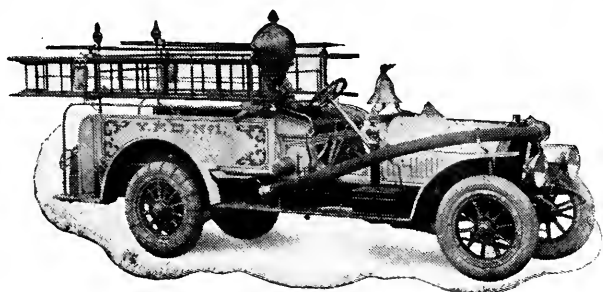
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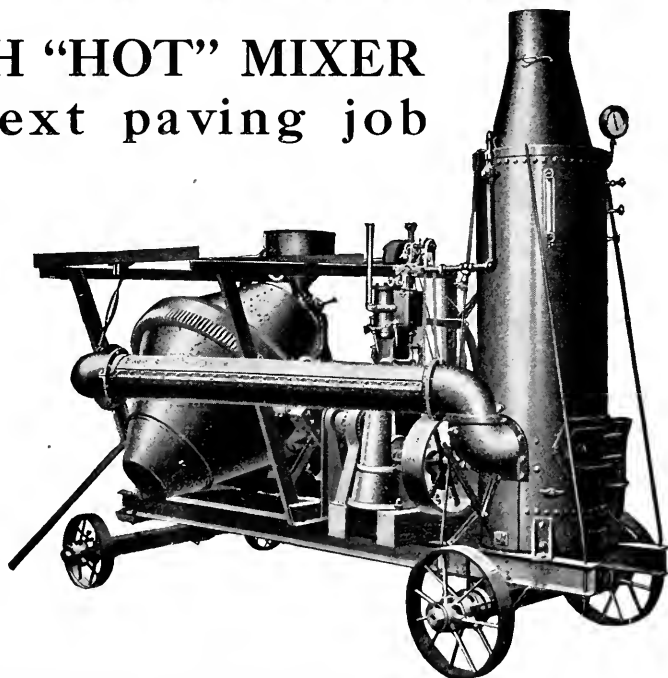
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Entered at Post Office, Santa Clara, Cal., as Second-Class Matter

VOL. XXVI

FOURTEENTH YEAR

No. 3

EDITORS - - - H. A. MASON AND WM. J. LOCKE
EDITORIAL OFFICE - NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO
PUBLICATION OFFICE, - - - SANTA CLARA, CALIFORNIA

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Published Monthly. Yearly Subscription, \$2.00 in Advance. Single Copies, 25 Cents

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PACIFIC MUNICIPALITIES

A Journal for Progressive Cities

VOL. XXVI

MARCH 30, 1912

No. 3

THE FIRE WASTE

By A. E. Dodson, Superintendent of the Fire Department of San Diego, California

During the year 1911, the loss by fire in California was \$6,547,198, and throughout the United States and Canada, was \$234,337,259, without taking into account the great waste by forest fires, of which we have no record.

The per capita loss in the United States is \$2.51. The average waste in the United States in two years, would more than construct the Panama Canal. While the increase in population since 1880 has been 73%, the increase in fire waste is 1.34%. Thus you see the immense waste, notwithstanding the great efforts to suppress the ravage.

CAUSES OF FIRES

They are numerous, but among the leading factors we find faulty construction, poor electric wiring, parlor matches, defective chimneys, gasoline and gas explosions. To this we must add incendiarism and over-insurance. With the exception of the latter two, most of the causes can be reduced or modified by good ordinances, well enforced.

Over-insurance is one of the frequent causes of fire. It may not be

classed as incendiary, but it is close akin. A man who is over-insured is usually careless. In other words, while he may not apply the torch to his own property, he has no especial interest to see that all danger from fire is removed. He is dishonest if he wilfully over-insures, as he expects to recover in case of an accident, and takes but little interest in avoiding such accident. He becomes the beneficiary in case of fire, and frequently jeopardizes the property of an honest neighbor, who considers a fire to his property a calamity.

Incendiarism and over-insurance can be materially reduced when fire insurance companies demand a different standard in selection of agents. They should be selected for their honesty and intelligence, rather than from their ability to secure business. This plan would materially reduce the fire losses.

PREVENTION OF FIRES

As stated above, the strict enforcement of building and oil storage ordinances would noticeably reduce the hazard. In large cities these regulations can be enforced, but small towns

are inclined to take the risk. A Town Marshal may be delegated to see to their enforcement, but usually he has other duties that appeal to him and he is not concerned whether the new hotel or the school building is constructed upon safe and sane methods. Possibly the owner, desiring to obtain low insurance rates, would attach a hose reel, or procure two or three fire extinguishers, and then rest in security. In the course of six or seven years, a fire may occur, and then, when too late, he finds the hose has rotted or is out of order, and his chemical extinguishers are worthless because they were not recharged every year or two, as they should be. Had there been a regular course of inspection by some competent authority, these neglects would have been discovered and remedied.

One of the first acts of the writer, when he took charge of the San Diego Fire Department, was to appoint a fire marshal, and every annual report from the fire chief since, shows the efficiency of that officer in prevention of fire by constant and vigilant enforcement of the ordinances regulating oils and accumulations of combustibles in proximity to buildings. The average merchant or business man does not realize the danger to his own and adjoining premises when he piles his back yard with boxes, paper and excelsior. An efficient officer, armed with sufficient authority, and possessed of tact and intelligence can overcome these dangers, and frequently receives the thanks of the innocent offender.

CONSTRUCTION OF BUILDINGS

In larger cities the construction of buildings is of greater importance than in smaller towns, for the reason

that the buildings are larger, as a rule, and endanger a much greater territory exposed thereto.

Buildings within the fire limits are usually required to be of Class A or B construction. They are usually high buildings and protected with a high service water supply, but good, large tanks of water may be found of service in case of deficit in the water supply. Many of these buildings are heated by furnaces, fed from oil tanks beneath the building. These tanks must be fully protected and vented. Electric wiring is also one of the dangerous factors, and if the wiring is not properly installed, is conducive to danger in what may be termed our best buildings. The danger from this source is quite often caused by careless or indifferent inspection.

Another danger is from gas pipes. If an explosion should occur within a building and the gas mains not be supplied with proper cut-offs, the gas will furnish the fuel to hastily destroy a building, notwithstanding the best efforts of a good fire department.

THE OIL HAZARD

Since the general use of the various products of petroleum, the loss from fires has been materially increased. Crude petroleum is used for fuel in manufacturing and culinary purposes. Gasoline and similar products are used in various ways. In their use, rigid ordinances should be enforced. Tanks and reservoirs should be properly located and protected, while gravity flow should be avoided or limited in its use. Garages should be so constructed that the gasoline could not be used in bulk; that good tanks, well ventilated, should hold the supply. Cement floors should be required, and no smoking allowed. Chemical fire

extinguishers should be convenient to every part of the building. Clothes-cleaning establishments should not be allowed more than five gallons of gasoline upon the premises, and the same rule enforced as to smoking. Neither a garage or clothes-cleaning establishment should be allowed in a business house, hotel or apartment house. The latter should be excluded from compactly built sections of town.

FIRE FIGHTING APPARATUS

With the increased hazard from petroleum products, there has been also an improvement in fire fighting by the use of auto-drawn apparatus. While the use of water for large fires is as great as ever, the motor-drawn chemical wagon has been a great boon, and has already caused the old fire horse, with his limitations, to give way for a more rapid motive power which will carry its chemical tanks and crew of men, and a supply of hose also, to a distance never dreamed of by the old-time firemen.

While at this writing the gasoline pumping apparatus has not reached the efficiency hoped for, several departments have discarded the horse and use motor power to propel the steam engine. Several auto-drawn aerial ladder trucks are now in use in the United States and British Columbia. This apparatus is not only drawn by motor power, but the ladders are raised and adjusted by mechanical device. In the use of auto-drawn apparatus, the fire department not only finds the upkeep much cheaper than horse-drawn apparatus, but it can in less time, cover three or four times the same territory. On arriving at a fire, your chauffeur can be a fireman, instead of holding his team. Again, while it has required one team and

driver to each, the steamer and the hose wagon, by combined motor apparatus you discard five horses and two drivers. Quite a saving, is it not?

Small towns can, for \$5,000 to \$6,000 procure a motor-drawn combination chemical and hose wagon. There should be a couple of paid men in charge, as an auto, like a strange horse, might balk at the wrong time if not intelligently handled.

PURCHASE OF FIRE APPARATUS

A city charter should not be so rigid in regard to purchases that the councilmen are required to purchase from the lowest bidder at competitive bids. I know more than one community where the city was compelled to take an inferior apparatus. In these days of trusts and combines, we frequently see that competition does not compete.

GENERAL INSPECTION

It appears to the writer that a word of advice should be given regarding regular inspections by the proper officials. Although the building inspector and the fire marshal endeavor to prevent conditions inviting a fire, there should be regular (not spasmodic) inspections of all public buildings and places for public gatherings. Proper means of escape must be made for the occupants. A fire escape is of little use if placed where it's existence is not known, or if it requires the breaking down of a door to reach it. They should be at the ends of halls or in some conspicuous place, and red lights directing its location at night. Doors to all public places should open outward. Exits should be large, and at time of a gathering, all doors should be unlocked.

FIRE ALARM SYSTEMS

While prevention from fire is of the first importance, and a well equipped department is imperative, we must not forget that immediate notice of a fire is essential. In small towns, local conditions must largely govern the method of giving the alarm, but in large towns and cities, the most approved

electrical appliances are required. The system must always be ready. It must be complete, and if possible, independent of other electrical systems. Cheap men in charge of a cheap system is criminal. You never know how important a fire alarm system is until an alarm is sounded and you get the wrong bell.



THE FIRE ALARM OF TODAY

By George R. Babcock, Superintendent of the Electrical Department
of the City of Oakland, California

Sixty years ago, electric fire-alarm telegraphs were unknown. New York City was the only municipality that attempted to give information by bells or signals as to the location of an incipient conflagration. In New York the city was divided into districts with a watch-tower in each district, and watchmen were on duty at all hours of the day and night. The watchmen were advised of the existence and location of a fire by their sense of sight.

The districts were numbered, and upon the discovery of a fire, the watchman in that district would strike upon his bell the number of that district. This was generally heard by the watchman on the next tower and the performance was repeated by him, so that after the lapse of sufficient time the alarm was finally given from all the watch towers in the city.

In 1851 Boston appropriated \$10,000 for the construction of an electric fire-alarm telegraph and this, though crude, was such an immense step in advancing the art of positively inform-

ing all engine companies of the location of an incipient fire, that it has been gradually improved and adopted by every important settlement.

In 1877 the telephone industry started. Though this has since grown to enormous proportions, insurance companies have not considered that telephone systems did any more than slightly supplement a well designed fire-alarm telegraph.

Like nearly all electrical communication systems the modern fire-alarm system had its humble beginnings, has progressed through a considerable development stage, and now is coming to be regarded as a field for trained professional effort.

As in the telephone and electric light field, so the early fire-alarm systems were developed by telegraphers, of those skilled in that art; but with this important difference, that while the former installations were largely in the hands of private corporations, the latter were, in general, under the control of municipalities, and became, nat-



CENTRAL OFFICE OF OAKLAND'S FIRE ALARM SYSTEM

signaled by the repeater, by the keys on the table, or by the manual transmitter.

The use of the tapper lines is further seen in the operating at the engine houses. The alarm, whether sent out automatically or manually, is there received first on the tapper line at a high rate of speed as a preliminary warning and registered on a tape and is followed closely by the alarm on the gong line given much more slowly. Companies that are not to respond to an alarm, signalled by the tapper, shut off the gong line and all the subsidiary apparatus so that the sleeping men and the horses may not be unnecessarily disturbed, but the man on watch stands ready to get a possible second or third alarm that then must sound on the gong and send the company out.

The advantage of the manual system is that the box may be run at a high speed, bringing the alarms into the central office quickly, where they are transmitted quickly to the engine houses. The lines are thereby cleared quickly for the next alarm, a feature of great importance in large cities, where at times one alarm will follow another in rapid succession.

There is also a 100 local 20 trunk, private exchange telephone board, (equipped at present to half its capacity,) to which all the telephones of the department are connected. Trunks from both the public telephone companies are brought to this board. Through the board all the telephone business of the Fire Department is transacted, including the reporting of fires independently of box alarms. For the latter purpose two trunk lines are used exclusively and lamps connected to them are equipped with red glass

in order to attract the attention of the operator instantly.

The storage battery is situated in the basement and is mounted on metal racks and provided with both glass and porcelain insulation. All wires from battery to board are in conduits and show only at battery terminals: in fact, all wiring is in conduit, and in the case of signal lines, in lead covered cable.

The laying out of the building conduit system required forethought, because the needs of the department for many years to come had to be anticipated. This was successfully accomplished on the checker-board plan, with traps set in the concrete floor above the basement in such order that any part of the room may be reached from any other part without expensive cutting of floors, whenever changes are necessary.

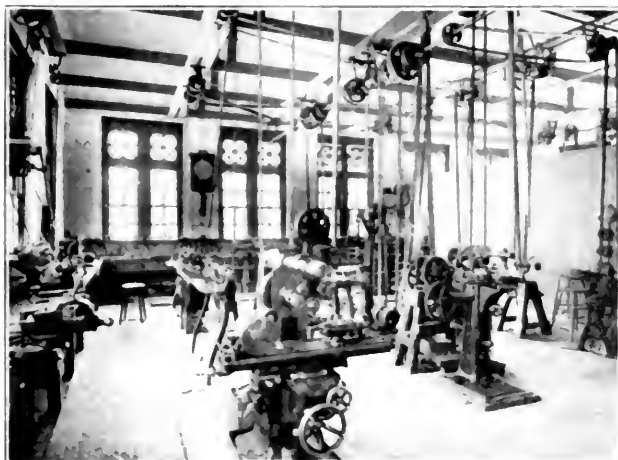
The main room is lighted at night by the indirect system. The reflection from the white walls and ceiling and from the marble wainscot and light colored stone floor gives a diffused and softened light without shadows and without glare.

A large room on the main floor, of the same width as the operating room, but extending back only half as far, is devoted to the shop of the department, which is equipped with modern tools of sufficient number and variety to enable a great deal of high class work to be turned out at a very considerable saving in money both on repairs and on new construction, and with an important saving in time on emergency work. Shaping machines, drill presses, lathes, emery wheels, and milling machines, one of which of considerable size, furnish a wide range of capacity. Castings have to be made outside, but

such things as horse releases, tape registers, gongs, fire boxes, police boxes, automatic lighting switches, and many other pieces of apparatus with all their complex parts are made in this shop in a superior manner and with a material money saving to the city.

As with the housing of the central apparatus, so with the system of wires and cables connecting with the engine houses and other important elements of the Fire Department, to leave them exposed to the hazard of weather and other causes of overthrow or disruption is as poor judgment as to have no proper center of reception and dis-

tribution. As far as practicable all such wires have been placed underground and the extensions planned will ultimately cover the entire plant. A saturated cable seems to adapt itself better to this class of work than the dry paper, as the construction is necessarily of a mixed nature and the aerial lines are subject to contact with high voltage wires of lighting or power companies that would be very apt to puncture the insulation of the ordinary dry paper cable. A saturated cable is one where the insulating paper surrounding the wires is saturated



with a gummy compound, the composition of which is a secret of the manufacturers. The effect of the saturation is so completely to fill the space within the lead armor that dampness, and a consequent low insulation, cannot enter, and often in case of rupture by high voltage discharge, this compound will flow over the wound and prevent more complete destruction of the cable. The service does not demand the low electrostatic capacity of the dry paper cable, but does demand an uninterrupted communication at all times, which this type of cable, on account of its rapid deterioration by the

absorption of moisture in case of puncture of the armor, does not offer. An insulation resistance of 100 megohms, if maintained throughout, is sufficient, but a higher insulation is specified because of the difficulty of holding up the terminals in the base of the pedestals of fire-alarm boxes to anything like that standard.

When the underground cable system as at present provided for is completed, it will consist of over 95,000 feet of lead armored, saturated core cable of from 6 to 180 conductors apiece. About one-third of these con-

ductors are 19-gauge and are twisted in pairs to be used for telephone purpose only. The balance consists of 16-gauge straight conductors, which are used for fire box and engine house circuits.

Each separate conductor is insulated with three layers of paper thoroughly saturated with a high grade compound. The insulation resistance of this style of cable carries from 300 to 600 megohms per mile. Considerable difficulty was experienced in obtaining cable of low electrostatic capacity with the saturated core feature. However, as low an average of 0.15 micro-farads per mile was obtained on the last order, the first order being rejected because of a capacity of about 100 per cent above that specified.

Underground conduit space is furnished the city by the Home and the Pacific Telephone and Telegraph Companies; also position on their poles is furnished when desired. About one mile of underground conduit was layed in districts not covered by either of the two operating companies. The main cables extend from a radius of about 15,000 feet to a distributing frame in the operating room of the fire-alarm building. All wires, including the Home and the Pacific Telephone and Telegraph Companies' telephone trunk lines, enter the operating room through 200 conductor rubber insulated lead armored cables, and terminate on standard 25-pair terminal blocks mounted on top of the distributing frame.

Twenty pair fuse mountings equipped with $\frac{1}{2}$ ampere pencil shaped fuses occupy the lower half of the distributing frame. Both the fire-alarm box circuits and the telephone switch-

board lines terminate on the front of the fuse mountings.

The cross connections are made from the underground cable terminal strip by running flame-proof rubber covered wire from the cable pair desired, through enameled rings down to the fuse mountings, where connections can be made to any line on the fire-alarm or telephone switchboard.

This distributing frame (capacity 300 lines) is covered with a cabinet having glass doors on the front and back, which render the frame accessible from either side. The top of the cabinet is covered by a marble slab 4 feet long by 3 feet wide and has a galvanometer and bridge mounted on it, arranged for locating cable and line trouble. As the distributing frame is located on the same floor and near the fire-alarm and telephone switchboard, it is easily accessible to the operator, who can make tests on lines without being called a great distance from his work.

Repeaters, operating table, and manual transmitter are mounted on marble bases supported by steel frames as a further protection against fire or damage by high voltage lines.

All contracts let were for material only. Conduit, switchboards, instruments, wiring, and cable, in fact all electrical apparatus connected with the installation were installed by the Electrical Department of the city, thus the operating force gained a detailed knowledge of the location and manner of installation of all the circuits. All of the work, both engineering and construction, was carried out under the personal direction of the writer.

Reference was made to provision for future expansion of the system. Of

course it is plain that, so far as laying of conduits and stringing of wires is concerned, the growth of the city will offer no special difficulty, but a central station not planned on its establishment for such increase of duty would involve great expense and possible delay. In this installation the future has been considered so that expansion of capacity means but the minimum of installation of new apparatus and of expense. The present capacity is for a city of 200,000 inhabitants, to which limit Oakland is fast approaching; but with the duplication of apparatus already installed and without change in the building or in any of the cable systems a capacity for a city of a million people may easily be obtained.

The progressive spirit displayed by the people of Oakland is fast approaching; but with the duplication of apparatus already installed and without change in the building or in any of the cable systems a capacity for a city of a million people may easily be obtained.

The progressive spirit displayed by the people of Oakland should meet with general commendation, for it has brought about, among other great improvements, the erection of an electrical building that is one of the handsomest and most modern in the United States. Wherever interest is shown in the care of electrical equipment the electrical building of Oakland is deservedly pointed to as a pattern for this kind of construction. Further provision voted by the people of Oakland for the erection of municipal buildings gives \$1,300,000 for the construction of a new city hall,—the cornerstone of which has been recently laid by President Taft,—allows \$3,000,000 for building additional school houses, and authorizes the expenditure of \$500,000 for the erection of a magnificent public auditorium.

Oakland has been exceedingly fortunate in her choice of public officials, to whose effort during the last eight years are largely due the splendid progress she has made and the uninterrupted prosperity she has enjoyed.



SPECIFICATIONS FOR FIRE HOSE AND APPARATUS

When advertising for bids on fire hose or apparatus, city officials would do well to use the forms published elsewhere in this issue, if unrestricted competition is desired, together with the opportunity of securing the best goods obtainable.

In the matter of fire hose, should you adopt any specifications whatever, even though the most general in character, you will be obliged under the law to accept the lowest bidder offer-

ing to comply with such specifications and thereby deprive your city of the opportunity of securing the best goods, because of their higher price. In other words, if you have specifications which will permit all dealers to bid, you must accept the lowest responsible bidder and will therefore get the cheapest and naturally the poorest goods, whereas, without specifications, you may use your judgment of the goods offered.

EXPERIENCES OF A VOLUNTEER FIREMAN

I am a graduate from a volunteer department, and as many of the present day citizens have not had the necessary familiarity with volunteer firemen to fully appreciate their merit, possibly a few words of my own experience might be taken in homeopathic doses.

Our department consisted of two companies, the white shirts and the blue shirts. I belonged to the former. To prevent hard feelings, we wisely tried to give every member an office. We not only had a captain and lieutenant, and others with military titles, but we had a president, vice president, secretary and treasurer. All of these officials except the treasurer appeared to work overtime. The treasurer lived on hopes and prospects. He expected, 'most any day, our company would save the home of some prominent citizen who would present a check as a nucleus for an aged fireman's pension fund. At last accounts, the home of that prominent citizen had not been saved from the flame, and for that matter, very few others. In fact, the department was not altogether organized to put out fires. Of course, if a fire insisted on getting in our way, and we had time to put on our uniform and hunt up a spanner, we'd do the best we could for it. But most of us failed to get down to the practical part of our trade. We were some on the show, however, especially if the right bunch of girls came along. There was much rivalry in our companies—principally in an effort to see which company would capture the next ball. In our apportionment of officers we had some perplexing questions. One was, who

was in command at a fire; the captain or the president. This question once came up after we had hooked on to a hydrant with about ninety pounds pressure. As the water man at the hydrant did not know whose orders to obey, he held the spanner while the two officials argued the matter, and I might add, incidentally, while the house burned down. The same result occurred another time while our companies were trying to settle the right use of a certain hydrant. Two fine streams of water were sent in opposite directions, but none was directed on the building. It soon joined the large list of unfortunates standing to the credit of our department.

We were not annoyed with building ordinances, and our builders could erect a three story frame shell, without a fire stop. The bricks in the chimneys could be laid on edge, as they went further that way. Loose cloth was tacked on the joist or rafters overhead, as it was cheaper, and helped business along when Mary Ann with her coal oil can, started her fire some cold morning.

In the course of time, our town began to grow, and new fangled ideas were adopted. The City Council purchased horses for our hand-drawn hose wagons. A half dozen paid men took charge of the apparatus. An electric alarm was attached to a gong at headquarters. Telephones were also placed there, and the old-fashioned method of shouting "Fire" and discharging pistols was tabooed. Finding our patriotic efforts were not fully appreciated, we disbanded, each member retaining his helmet and spanner to show future generations the relics of his former greatness.

AN OLD FIREMAN.

VALLEJO'S MUNICIPAL WATER SYSTEM

Written Expressly for Pacific Municipalities by Hon. W. J. Tormey and A. P. Noyes

The history of the municipal water system of the City of Vallejo, which has been in operation 19 years, is a convincing proof of the value of public ownership.

Vallejo was forced in 1890 to undertake the construction of a municipal water plant. A few years previous a water famine had caused untold hardship, while the private corporation which owned and operated the system was unable to provide a remedy. Besides the water furnished the people was not only inadequate in quantity but also inferior in quality.

After mature deliberation, the Board of Trustees decided to call a bond election for the purpose of procuring a water supply from the Suscol Creek water shed, located some 10 miles from Vallejo. The proposition was defeated by the voters, but at a second election held in June, 1892, the measure was carried. However, the price of the Suscol Creek water shed was thereupon raised beyond the City's reach and this location for the proposed works was therefore abandoned.

Acting upon the advice of the City's Engineers, Messrs. C. E. Grunsky and Herbert Vischer, the Board of Trustees then secured an option on the Hastings' Ranch of 3366 acres in Green Valley for the sum of \$40,000, and a third election authorized the issuance of bonds to the extent of \$250,000.00 for the construction of the system. In addition to the Hastings property the Madison ranch in Wild Horse Valley was bought for a reservoir site at a cost of \$9,300.00. Other lands

costing \$4,800.00 were also procured, while the cost of riparian rights and rights of way run up the aggregate expense under this head to \$61,622.29.

Contracts for reservoirs and pipe lines were let in 1893, and the work was completed the following year.

The system as originally constructed included the following features: 1. A storage reservoir in Wild Horse Valley, some 22 miles from Vallejo, having a capacity of 400,000 gallons and costing \$45,416.13. It is fed by a water shed of 1860 acres.

2. A diverting dam costing \$8076.35 located about a mile down the canyon from the storage reservoir and consisting of a small masonry structure used to collect the waters of the canyon and divert them from their natural channels, into the City's mains. It is fed by a watershed of 1500 acres, the natural flow from which supplies the system from December to April each year. When the stream became inadequate, additional water was let in from the storage reservoir above. The diverting dam is situated at an elevation of some 520 feet above tide water. There are no live streams on the water shed.

From the diverting dam the water was conducted through a wrought iron pipe line to a distributing reservoir on Fleming Hill, two miles north of Vallejo, on an elevation 212 feet above tide water. This is a concrete structure, having a capacity of about 3,500,000 gallons and costing \$12,530.36.

The capacity of the original wrought

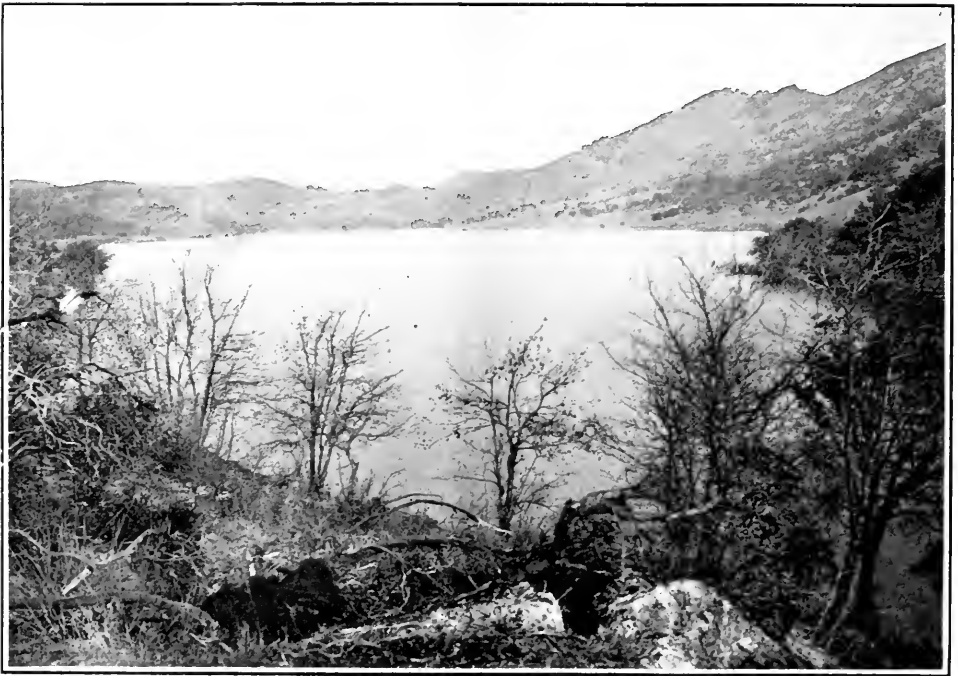
iron pipe line as determined by actual measurement at Fleming Hill, was 715,000 gallons per diem.

The total cost of the original construction, including general, legal and engineering expenses, was as follows:

GENERAL EXPENSES

Real Estate and Rights of Way	\$ 61,621.20
Engineering Expenses	18,943.50
Legal Expenses	9,370.58
Other General Expenses	3,579.15
Total General Expenses	\$ 93,514.43

of increasing the supply and improving the service. Bonds were again voted and larger cast iron mains were laid on a part of the supply line and also in the distributing system. Again in 1905 additional bonds were voted, and the remainder of the main pipe line was rebuilt and run over a new and more advantageous route. Still again in 1908 the rapid growth of the city necessitated the issuance of more bonds for the construction of an additional storage reservoir. This one is



WILD HORSE VALLEY RESERVOIR

CONSTRUCTION PROPER

Storage Reservoir	\$ 45,416.13
Diverting Dam	8,076.35
Distributing Reservoir	12,530.36
Pipe Lines	68,786.87
Distributing System ..	38,128.86
Tunnel	11,984.68
Total Construction Proper	\$185,296.45
Grand Total	\$278,810.88

In 1902 the city authorities were brought face to face with the problem

known as Wild Horse Reservoir No. 2. It increased the total storage capacity of the plant to over a billion gallons, thereby insuring the city a bountiful supply of water for two years. The last addition to the municipal plant has just been completed, and consists of an additional distributing reservoir having a capacity of 13,000,000 gallons, and a duplicate 14-inch

cast iron main running into town from the two distributing reservoirs. With this improvement completed, the city is in first-class shape in so far as its water supply is concerned.

The system has been a great benefit to the city, furnishing an adequate supply of pure water at a reasonable price. It is largely responsible for the recent rapid growth of Vallejo and has greatly improved the sanitary condi-

by reason of the fact that it is free from the annual spasm of rate fixing with a private corporation which in so many cities is attended with much controversy and expense to both parties. The water rates in Vallejo are about one-half the average rates paid by the other communities about the bay, which fact sufficiently demonstrates the advantages of municipal ownership in this commodity.



DISTRIBUTING RESERVOIRS

tion of the city. The rates which were in force by the private corporation at the time when the city commenced business have been cut in half, thereby directly saving to the taxpayers and the United States Government approximately a million dollars, or an amount practically equal to the gross income since the municipal plant was installed, and last but not least is the moral advantage enjoyed by the city

Receipts and Expenditures of the Vallejo City Water System for the fiscal year ending June 30, 1910:

RECEIPTS

Sale of Water	\$70,612.58	
Tapping	685.25	
Sale of Material etc....	63.15	
		\$71,360.98

EXPENDITURES

Expended for Operation	\$11,438.00	
Expended for Betterments	4,126.80	\$15,564.80

Gain of Receipts over Expenditures	\$55,796.18
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Receipts and Expenditures of the Valjejo City Water System for the fiscal year ending June 30, 1911:

RECEIPTS

Sale of Water	\$77,799.48
Tapping	932.25
Sale of Material	8.40 \$78,740.13

EXPENDITURES

Expended for Operation	\$16,432.52
Expended for Betterments	3,468.43 \$19,900.95

Gain of Receipts over Expenditures	\$58,839.18
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The system has been given no credit for water used for sprinkling and flushing streets, or for park, fire or sewer purposes, and no charge is made for the water supplied the schools, both public and parochial, or the public buildings.

Metered consumers pay for what water they actually use at the rate of 15 cents per 100 cubic feet (equivalent to 20c per 1000 gallons) and the Unit-

ed States Government pays 18 cents per thousand gallons for water furnished the Navy Yard. The flat rate charge is 75c for a 5-room cottage and \$1.00 per month for a 6 to 8-room cottage.

The total cost of the water works to date, which, by the way, is entirely a gravity system, is approximately \$850,000.00, including a bonded debt outstanding of \$277,000.00. The distributing system embraces forty miles of pipe, and the number of taps at the end of the last fiscal year was 2396. There are 150 fire hydrants. The city covers one square mile in area and contains a population of 13,000 souls. It has an assessed valuation of \$5,453,468.00. The tax rate for 1911-12 is \$1.00, of which \$.756 is apportioned for bond interest and redemption, \$.08 for the public library and \$.164 for general purposes.



THE PERMANENT IMPROVEMENT OF COUNTRY ROADS

By F. C. Finkle, Consulting Engineer, 448-449 I. W. Hellman Building, Los Angeles

In recent years the necessity for good roads in the country, as well as in the cities, has become apparent to everyone. The part which motor vehicles have played in creating this need is familiar to all, and can be passed without discussion.

The demand for good roads has come to stay, and will increase from year to year. The milestone of education in regard to this matter is well behind us, and the art of constructing these good roads is now the greatest and most important question before the engineering profession and public officials.

As might well be expected, much experimenting and many failures have resulted, and there is yet a sad lack of harmony regarding methods of construction among those who "ought to know". The writer has been identified with the science of road making in California since 1890. Then it was known as "street paving", for no one dreamed that anything more than turnpiking the country roads would ever be popular.

In those early days there was as much difference of opinion among engineers and officials about how to improve the streets in cities as there is

now in regard to country roads. There was also as much experimenting with the various materials at hand as there is now and the only consequential differences I can recall are that the discussions centered on city streets and that we did not have the experience of Western municipalities from which to learn.

The writer well remembers a junketing trip, which he took with the Street Committee of the San Bernardino City Council, for the purpose of inspecting street work in other California cities during the early part of 1890. Some cities were then experimenting with macadam made with various kinds of rock, others with brick, and Los Angeles showed them what was then claimed to be the real solution of an economical but permanent street pavement. The Los Angeles idea was then a six-inch broken stone foundation, rolled and watered, with small rock and screenings to fill the voids in the coarse crushed rock, and with a wearing surface of two inches composed of bituminous rock, or an asphaltum—sand mastic. It was argued that the broken stone foundation would be equally as good and permanent as a cement concrete base, and only the wearing surface would have to be repaired and renewed. Such streets as Broadway, just then beginning to be a business thoroughfare, were being paved in this manner. Main street, the leading business street, had many years before been paved with granite blocks, the idea having been copied from Market street in San Francisco. This experiment had not met with popular approval, both because the pavement was noisy, and soon became uneven, due to the irregular settling of the blocks.

One or two blocks on Spring street had been paved with Portland cement concrete and asphalt wearing surface. It was conceded that this made a good pavement, and the writer does not remember of anyone saying there was anything better, but the newly discovered macadam base and asphalt wearing surface was claimed to be "equally good," but very much cheaper. The latter claim was undoubtedly true at that time, when all Portland cement was imported into California from Europe and cost delivered about five dollars per barrel. The other



VENICE BOULEVARD of Los Angeles highway system, on Feb. 24, 1912, showing undulating surface produced this winter since this roadway was relaid last fall, having become too rough for travel last summer. Next summer, the heat will increase the unevenness rapidly.

claim as to quality and durability of such a pavement was soon disproved, however, after a short period of use. So much for Los Angeles.

About the same time, San Diego and Riverside were laying an asphalt wearing surface on the red, hard subsoil, after removing the disintegrated surface. They believed the hardpan at San Diego and the compact dry clay at Riverside would make as good a foundation as cement concrete, and it made street improvement very cheap. The San Bernardino committee was

not much impressed by this, and at any rate could readily see that it would not answer for the adobe soil of their home city. But they were greatly taken by the Los Angeles "protected macadam", for that is what it really was, although the term had not been then applied to it.

San Bernardino was about to undertake its first paving and it was a momentous question. The cost of cement concrete base and asphalt wearing surface would approach 30 cents per square foot, while the Los Angeles "protected macadam" could be obtained for 18 or 19 cents a square foot.



WHITTIER BOULEVARD on Feb. 24, 1912, showing undulations in surface of oiled or protected macadam, which have appeared during the winter months, and which will rapidly become worse in hot weather.

The writer, who was their engineer, was compelled to take a stand against the first wishes of the committee, and opposed the macadam base. In this he would certainly have lost out, on account of the great difference in cost, had it not been for the following peculiarly fortunate circumstances: Richard Gird, then owner of the Chino Ranch, had discovered a deposit of bituminous rock on his property and wished to try its use for street surfacing. He offered to furnish it to San Bernardino at the bare cost of mining and transportation, which would reduce the cost of wearing surface from

four to five cents per square foot as compared with asphaltum.

The writer realized that it would be less permanent and desirable than a properly prepared asphalt wearing surface, but he also realized that a macadam foundation would be a total failure and would require complete reconstruction of the whole, while the wearing surface could be patched and renewed without tearing up the pavement to the bottom, and the work thereby made permanent at slight additional cost. The result was a compromise, and the business section of San Bernardino was paved with a six-inch base of Gillingham Portland cement concrete and a two-inch wearing surface of Chino bituminous rock. To-day these same pavements are in use at San Bernardino, save only the wearing surface, which was replaced with asphaltum about ten years ago. In spite of the frequent cutting and repairing of these pavements, the concrete foundation is as good today as when it was first laid down, and no one has undertaken to fix a time in the future when it will cease to be good.

In the meantime the experiments at San Diego and Riverside became quick failures, because the wearing surface cracked and wore through, permitting water to penetrate the foundation. The Los Angeles "protected macadam" soon became so rough that it presented a remarkable appearance, and could be traveled neither with comfort nor safety. It defied all attempts at repair and after squandering a large amount of money on it, enduring the gibes of the public and the ridicule of the press for a time, the city officials were compelled to remove it completely and make replacement with a cement concrete base.

This historical discussion has gone to the above length because it is applicable to the present question of country roads improvement, and be-

cause we can learn from it a valuable lesson. We are today having the same thing repeated in very much the same way. Dry macadam has been proved to be unfit for use, where the travel of motor propelled vehicles is prevalent. The same desire to obtain something at a low first cost is equally strong now as it was twenty-two years ago. The result is, therefore, the same:—experiments and failures galore. The idea was conceived, that in country road work a macadam with more or less road oil in its top course would overcome the defects of a dry macadam. The reasoning was the same as in Los Angeles twenty-two years ago, namely, that a surface protection would prevent the formation of chuck holes and ruts; that the mechanically bonded macadam below could not be disturbed, if protected by an elastic bonded surface.

Such reasoning sounds well now, just as it did then, but the trouble with it is that it ignores facts. However plausible a theory this may be, it fails to recognize what takes place on a street or road, subjected to anything like heavy and frequent traffic.

First of all, no oiled or asphaltum surface can be made so hard as to retain its strength under any considerable range of temperatures. If made so hard that it remains rigid in hot weather, it will contract, crack and disintegrate in cold weather. If made so soft, that it is elastic and durable in cold weather, it will be squeezed and pressed out of form by the travel on it in hot weather.

California has the most perfect climate, as regards temperature variations, of any state in the Union, but it has nevertheless variations of temperature covering a range of over 130 degrees in the sun. Asphaltum is sensitive to temperature changes, and whatever mixture is selected will become too soft or too hard for the ex-

tremes. Usually a medium degree of penetration is specified, with the result that it becomes too soft in summer and too hard in winter.

In much of the road work of California counties only an ordinary road oil has been specified. In other places an asphalt residuum has been specified. But in both instances the specifications either called for a "heavy asphaltic oil", or for some required percentage of asphaltum and 80 degrees penetration.

This was the condition of affairs found by the writer in the Los Ange-



POMONA—Bassett Road of Los Angeles County highway system, showing the way a rut begins to form, even in cool weather. See foot rules placed across depression, and other incipient ruts in foreground. These ruts will deepen rapidly when the road softens from hot weather.

les County "good roads work", when he was appointed by the Automobile Club of Southern California in 1909 to investigate and report on the work of the Los Angeles County Highway Commission. Attention was called to the fact that the work must inevitably become a failure under such specifications, and it was suggested that asphaltum having a proper degree of penetration, high purity and freedom from "cracking" be employed not only for a wearing surface, but for bonding

the crushed rock base. These recommendations were merely made for the purpose of securing as good work as possible under the plan adopted for building "oil macadam" roads. That permanent roads would be secured from any kind of a macadam was not to be expected. The Los Angeles County Highway Commission and their Chief Engineer rejected the recommendations and continued to construct oil macadam roads with heavy road oil and volatile residuum. The resulting opposition of the Auto Club prevented the reappointment of the Commission and its Chief Engineer, Mr. A. E. Loder, and caused the appointment of a new Commission and new Chief Engineer, Mr. F. H. Joyner.

The work of the old Commission and its Chief Engineer has proved to be a complete failure, and the new Commission and its Chief Engineer have been unable to bring about much improvement, because most of the work had been let by contract under the old specifications. Hence, Los Angeles County has thus far been unable to make a beginning in the construction of permanent roads, and much money has already been wasted in costly reconstruction and repair to the work as soon as it was completed.

During the first summer after the work was completed the surface became soft, so that ruts, blisters and undulations appeared regularly. Large sections of the Long Beach Boulevard, the Venice Boulevard and the Pomona-Bassett road became impassable last summer. In places ruts from three to four inches deep were formed, elsewhere waves and chuck holes several inches deep occurred, and at other points the soft oily surface was

squeezed outward by the weight of the vehicles, causing blisters to appear along the margin of the road. At these places the road had to be taken up completely, the material dried with sand and screenings and relaid and rolled into place at great cost. Even this will only result in temporary benefit, as many of the places thus repaired show a tendency to return to their former bad condition, although there has been no hot weather to test them. Next summer will again reduce them to nearly the same condition as last summer, the process being only slightly retarded by the addition of more screenings and sand.

After the softening of the surface in the manner detailed, the second stage sets in, unless the whole is at once taken up and relaid. This second stage consists of movements in the underlying crushed rock foundation due to the frequent and heavy impact of rapidly moving motor vehicles. Being no longer protected against this impact by an elastic but rigid covering, the mechanically or oil bonded rock is bunched up into ridges, more and more pronounced, until the appearance of the roadway becomes so irregular as to baffle description. The volatile oil and residuum used in Los Angeles County actually acted as a lubricant to the crushed rock, when warmed by the sun, and caused the foundation material to move and bunch up more rapidly than a dry macadam under like conditions.

The action has in every respect been similar to that in the early Los Angeles City streets, which were constructed with macadam base and asphalt wearing surface, and failed during the nineties. The only difference has been that the "oil macadam" county roads

have deteriorated more rapidly, because the wearing surface was not as firm as the asphalt mastic formerly used in the City.

This class of work having proved such a complete failure, the question of what plan must be adopted to secure permanent work becomes an important one. It is undoubtedly true that by bonding both the foundation and wearing surface with residuum or natural asphaltum of greater density than 80 degrees penetration, better results will be obtained. But there are abundant past experiences and good reasons why this method will not be successful.

As already pointed out, no asphaltum can be made to stand such extremes of temperature as prevail in most parts of this state. As ordinarily used for street paving the degree of penetration is from 70 to 60, but it has been observed that even with this low degree of penetration, the two inches of wearing surface on streets having a cement concrete base become slightly wavy after a time. Where an asphaltum concrete binding course, between the cement concrete and the wearing surface has been used the wavy surface appears sooner and the depressions and ridges become more pronounced.

This is due to the gradual softening of the entire mass containing asphaltum down to the cement concrete, during the warm summer months, and its distortion into waves by the impact of travel. There are plenty of examples to demonstrate this both in Los Angeles and other cities, where such pavements are now generally used, and a time comes when the wearing surface must be relaid to smooth it out. So doing is not expensive, because the foundation of Portland cement is intact and the material in the asphalt wearing surface can be

melted and used over by the addition of a little live asphalt.

It is not to be wondered at that all street asphalts, both as wearing surfaces and as a base in whole, or as a binder course, become soft and gradually yield to the pressure and impact of travel in the heat of summer. The surface is black and absorbs heat rapidly and the heat rays penetrate to such depths that all of it does not radiate during the following night. Hence there results a steady accumulation or storage of heat in the pavement, which causes even an asphalt concrete base to yield in time.



A stretch of Whittier Boulevard in Los Angeles County, showing how the softening of the oil macadam, even in winter, has caused irregularities and a lateral squeezing producing the lumps and blisters on side of road. Feb. 24, 1912

The difficulty cannot be overcome by using asphaltum of a penetration degree below 60, because the low temperatures in winter, at or near freezing, will then crack and disintegrate the pavement, especially when cold is accompanied by moisture.

Only one class of material has so far been found, which can meet all the requirements as a foundation or base for street pavements. This is hydraulic Portland cement, and its adoption as a foundation for country roads will come as certainly as it has for city streets.

The only objection ever urged has

been the somewhat higher first cost, but this objection has now lost all its force by reasons of conditions prevailing at present in this state. Cement is now manufactured at home in large quantities, and is no longer imported. Its price is from \$1.50 to \$2.00 per barrel, depending on locality, and the aggregate for mixing concrete can be had in abundance at low cost.

Cement concrete base and asphalt surface pavements can be had for 18 to 21 cents per square foot in different parts of California, and oil macadam costs all the way from 12 to 19 cents per square foot. When Mr. Joyner became Highway Engineer in Los Angeles County and analyzed the cost data of his predecessor, he found the cost of oil macadam on many roads had been as high as from 16 to 19 cents per square foot. But first cost is not the sole consideration. Maintenance is of much greater importance. The saving of a few cents per square foot in original cost can soon be exceeded in high cost of maintenance, and the securing of a road which is permanent, and can be used with comfort, safety and without long and frequent interruptions to reconstruct it is more important than all else.

Only where travel is very light and infrequent can anything except a ce-

ment concrete base be safely recommended, and even then it is hazardous to use anything else, because travel usually gravitates towards improved roads and creates conditions, which cannot be foreseen before the work is done.

The following conclusions are derived from the preceding discussion:

1. Protected macadams were the subject of experiment on city streets over twenty years ago and proved failures.

2. Oiled macadams on country roads, where there is much traffic, have proved dismal and costly failures in recent years.

3. Asphalt concrete foundations and binder courses create a wavy and rough surface on roads subjected to fast and heavy traffic.

4. Hydraulic Portland cement concrete makes the only stable and permanent foundation base for pavement in city streets or country roads, having frequent, heavy or fast traffic.

5. The first cost of cement concrete foundations with asphalt wearing surface is slightly higher than street pavements with a foundation of mechanically or asphalt bonded macadam, but its maintenance cost is so much less as to make its use the more economical.



IDEAL FIRE PROTECTION IN A MANUFACTURING PLANT

By J. W. Swaren

As fire protection is one of the chief problems confronting the authorities of a municipality, it is probable that some ideas worth while can be gleaned from the methods employed

for such protection in large industrial works.

One of the largest and best known manufacturing companies around San Francisco Bay, desiring to escape a

recurrence of the disaster which overtook them in 1906, have established such an elaborate and complete system of fire protection at their new works as to be well worthy of emulation by all other manufacturing establishments. These works are located on the Alameda Estuary in the city of Alameda, and have a frontage on the water of 800 feet and a depth of 900 feet.

The first protectionary measure invoked was in the arrangement of the buildings. All buildings are detached and with ample passageways between, and arranged in groups.

Beginning at the entrance of the works, in the first group of buildings is found the administrative offices. Flanking this on either side is to be the pattern shop and completed stores and warehouses not yet constructed. The pattern shop being the chief hazard of the plant is to be located at the street corner, so that public fire fighting apparatus can be worked on two sides, while the other two sides will be covered by the private protection afterward described.

In the second group of buildings is the machine shop and the foundry, with the power house between. In the third group are the storage buildings for castings, fuel oil and sand, while the fourth is the pattern storage department, of which but one building is as yet constructed.

The fifth group immediately on the water front, comprises the wharfs, stables and the oil and paint storage. Oil and paint being particularly inflammable, not only is this building completely fire proof, but it is also completely isolated, being in the farthest corner of the plant with sufficient intervening space between that

and the nearest building, that there would be but small possibility of the flames communicating with the other building, should it burn.

The executive offices are of frame construction with slow burning walls and floors. Two large vaults are provided, one opening into the basement and the other opening into the main drafting room. These vaults are of sufficient size to accommodate all drawings, photographs, cost reports and other records of importance that may accumulate over a period of years. The most approved construction has been embodied in these vaults and even time locks control the doors, a precaution usually employed only by financial houses.

The factory buildings are all constructed with corrugated iron siding, metal windows, concrete floors and foundations and slow burning mill construction frames. This reduced the amount of inflammable material to the minimum, and yet effects a marked economy in the construction. As practically all the raw material kept on hand consists of metal or other non-flammable material, the storerooms are constructed with expanded metal partitions. No self-closing fire doors are installed. This was thought better practice by the company, as the safety of its employees in case of an incipient fire is of more importance than the slight possible loss through the burning of inflammable stock.

The company found it advisable for many reasons, among which is better fire protection, to install its own power plant. This is located at the geometrical center of the works.

The water supply for fire protection comes from two separate sources.

The first is the fresh water supply

for general use as well as for fire protection. This water comes from a 14-inch well, 200 feet in depth, which is located under the engine room floor near the boilers, and is pumped by a power-driven artesian well engine, having a 12-inch stroke and operating a bucket plunger pattern deep well cylinder. This pump delivers 80 gallons of water a minute into a 30,000 gallon steel tank 115 feet above the ground level on a structural steel tower. It is intended shortly to replace the artesian well engine with a Duplex Deep Well pump, because the latter mentioned outfit requires less power to operate and will deliver a larger volume of water.

An automatic starter, operated by a float switch in the tank, controls the pump, thus assuring a full 30,000 gallons of water in reserve at all times.

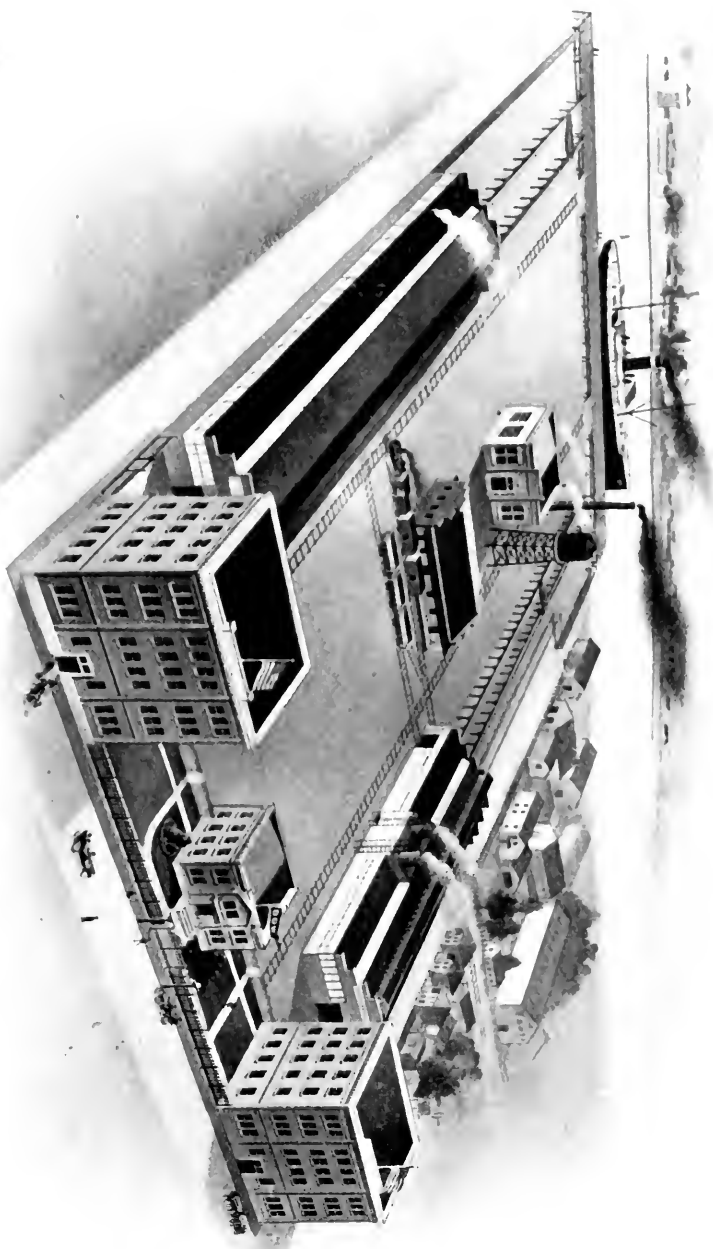
The second source of fire protection is a salt water system. A 14-inch substantial pipe line runs from the engine room to the estuary, a distance of 350 feet, directly to the suction opening of a Standard Underwriters' Duplex Steam Pump, having a capacity of 1000 gallons per minute at 750 R. P. M. This pump delivers directly into a salt water fire main which runs through the center of the property for its full length.

The fresh water system is carried to every portion of the works, hose outlets with quick opening valves being provided at easily accessible points. These outlets are equipped with inch and a half standard underwriter's hose in 50 foot lengths, and are so spaced that at least three lines of hose can be brought to bear on any portion of the floor. Under no circumstances are the workmen permitted to disconnect the hose, and in case

it becomes necessary to use water from these connections for manufacturing purposes, it must be delivered through the hose. In addition to the water protection, hand fire extinguishers are distributed throughout the premises, on the basis of one extinguisher to every 1500 square foot of floor area. These chemical stations are located midway between the hose stations. Strict rules prohibit the blocking of passageways to both extinguishers and hydrants.

For outside protection two standard fire hydrants, each with provisions for double hose line, are at present installed. One is in the center of the area bounded by the office building, machine shop, power house and foundry, and the other is immediately to the rear of the power house alongside of the pattern shop. A third will be installed shortly at the extreme rear of the property to cover the stables, oil house and pattern storage. These hydrants are identical in pattern with those installed by the city of Alameda, thus permitting interchange of fire equipment. A standard hand drawn hose cart, carrying a double line of 3½-inch hose is provided. Emergency kits consisting of axes, saws, and fire buckets are scattered at convenient points throughout the works. Fire proof galvanized iron cans, for the collection of rubbish and waste, are provided at each machine.

A very comprehensive watchman system is installed. This consists of fourteen key boxes, located in various portions of the plant and the watchman's route for visiting all these boxes is so laid out that he must cross and re-cross the points of greatest hazard a number of times. One complete circuit of the buildings every hour is



GEORGE E. DOW PUMPING ENGINE COMPANY, ALAMEDA, CAL.

required each night, from five in the evening to eight in the morning.

Electric lights are used throughout the plant, there being no gas on the premises.

The value of this elaborate system of fire protection will be greatly enhanced shortly by the organization of a fire battalion, having regular fire drills. Every foreman and sub-foreman is expected to be thoroughly fa-

miliar with the fire fighting apparatus, and qualified to take the right measures immediately should fire occur.

NOTE—The plant referred to in the foregoing article is the George E. Dow Pumping Engine Company, of Alameda, an institution which makes a greater variety of pumps than any other one manufacturer in the world.

They are pump specialists or experts as it were, and engineers or other city officials contemplating the need of this kind of machinery should not fail to consult them.

A MODEL FIRE ORDINANCE FOR SMALL CITIES

In accordance with the promise made at the Santa Barbara convention, Mr. Robertson, of the Board of Fire Underwriters, recently submitted the synopsis of a model fire ordinance for small cities. Thereupon copies of the ordinance were submitted to a number of city attorneys for their suggestions, and on March 2nd a meeting was held at the league headquarters for final consideration of the same. Among those present were Charles N. Kirkbride of San Mateo, Wallace Rutherford of Napa, H. G. McKannay of San Francisco, Albert Mansfield of Redwood City and N. E. Malcolm of Palo Alto, accompanied by Fire Chief E. F. Weisshaar. J. W. Robertson of the Board of Fire Underwriters was also present.

Each section was taken up and acted upon consecutively after full discussion. Following is the ordinance adopted by the committee:

ORDINANCE NO. —

AN ORDINANCE ESTABLISHING FIRE LIMITS, REGULATING THE CONSTRUCTION, ALTERATION AND REPAIR OF BUILDINGS, THE DISPOSAL OF RUBBISH AND THE STORAGE OF GASOLINE AND OTHER PRODUCTS OF PETROLEUM IN THE CITY OF —————, AND PRESCRIBING THE PENALTY FOR THE VIOLATION OF SAID ORDINANCE.

The Board of Trustees of the City of ————— do ordain as follows:

Section 1—Fire Limits.

- " 2—Exterior Walls.
- " 3—Wall Paper.
- " 4—Interior Walls
- " 5—Alterations and Repairs
- " 6—Permits for Alterations
- " 7—Moving Buildings
- " 8—Roofs and Skylights
- " 9—Chimneys
- " 10—Patent Chimneys

Section 11—Fire Places

- " 12—Electrical Work
- " 13—Rubbish, etc.
- " 14—Fire Marshal and Duties
- " 15—Gasoline, etc.
- " 16—Permits to keep Gasoline, etc.
- " 17—Tanks for Gasoline, etc.
- " 18—Use of Fuel Oil
- " 19—Penal Clause
- " 20—Repeal of Conflicting Ordinances.

FIRE LIMITS.

Section 1. The fire limits of the City of ————— shall be within that portion of said city bounded as follows:

EXTERIOR WALLS.

Sec. 2. (a) The exterior walls and all party walls (except curtain walls) of the buildings included within the district above described shall be made of reinforced concrete or brick, natural or artificial stone other than concrete block, or a combination of any or all of the above-mentioned materials; provided, that galvanized iron or tin cornices on skeleton wood frame may be used for exterior decorations. All outer walls shall extend at least two feet above the roof of such buildings.

(b) When the outer walls of a building are constructed of brick, stone or plain concrete, the thickness of said walls shall be in proportion to the number of stories intended for such building, and the number of inches in thickness shall be as specified in the following table:

STORIES HIGH	Base- ment	1st Story	2nd Story	3rd Story	4th Story	5th Story	6th Story	7th Story
One	16	12						
Two	16	16	12					
Three.....	20	16	16	12				
Four.....	20	16	16	16	12			
Five.....	24	20	16	16	16	12		
Six.....	24	20	20	16	16	16	12	
Seven.....	30	24	20	20	16	16	16	12

Party walls shall be four inches thicker than outer walls.

WALL PAPER.

Sec. 3. In the construction of new buildings or additions thereto, or in the construction of partitions to present buildings, no person shall cover or finish, in whole or in part, the wall or walls, ceiling or ceilings, of any rooms or building, with cloth, or with cloth and paper, or with paper; providing, however, that plastered walls and ceilings may be papered.

INTERIOR WALLS.

Sec. 4. All buildings shall have their interior walls, partitions and ceilings plastered with one or more coats of plaster at least five-eighths of an inch thick and extending down to the floor, except mills, warehouses, stables, laundries, factories and outbuildings where the exterior walls are not ceiled on the inside and partitions are boarded on one side only.

ALTERATIONS AND REPAIRS.

Sec. 5. (a) When the exterior walls of any frame building (except the first story front wall) which has been constructed within the fire limits of the City of _____ are altered, changed or damaged to one-third of their extent, or when the interior of any building shall be altered to the extent of tearing down more than one-half of the partitions, or when the interior is damaged to one-half of its extent, then the alterations or repairs of said building shall be constructed in the same manner as herein provided for new work. Whenever any frame building is damaged by fire to one-half of its extent the remaining portion thereof shall be immediately removed by the owner. Whenever additions are made to buildings in the fire limits, such additions must be made to conform to the construction provided for new work, but in the case of wooden buildings situated within the fire limits, no additions will be permitted if the estimated cost thereof is more than twenty per cent of the assessed value of the building to which the addition is proposed to be made.

PERMITS FOR ALTERATIONS.

Sec. 6. No wooden building situated within said fire limits shall be altered, repaired or added to without permission so to do being first obtained from the

City Council. Any person desiring to obtain such permission shall file with the City Clerk, addressed to the City Council, a petition describing fully the building and premises whereon the alterations, repairs or additions are desired to be made, also the materials with which it is proposed to make the same. The permit, if issued, shall state fully the alterations, repairs or additions allowed to be made, the materials to be used, and such regulations respecting the same as in the judgment of the Council may be necessary, which said permit shall be filed with the City Clerk; provided, however, nothing herein contained shall be construed to require the City Council to grant such permission, but they shall be the sole judges of the necessity and reasonableness of the alterations, repairs or additions, and their decision granting or refusing the permit shall be final and conclusive. Temporary permits shall never be granted under any circumstances.

MOVING BUILDINGS.

Sec. 7. No buildings shall be moved to another location within said fire limits more than ten feet distant from its original location, unless it is constructed in accordance with Section 2 of this ordinance. No building shall be moved from the outside district to within the fire limits, unless it is constructed in accordance with the provisions of Section 2 of this ordinance.

ROOFS AND SKYLIGHTS.

Sec. 8. (a) The roofs of all buildings included within the said fire limits shall be covered with either tin, slate, tiles, terra cotta, tar and gravel or prepared roofing, except those now otherwise covered; the latter shall be covered with one of said materials whenever the Fire Marshal shall deem them to be in need of repairs.

(b) Skylights shall be of metal frames with wired glass, or metal frames and heavy glass having wire screen of not less than four (4) inches of No. 12 wire and one (1) inch mesh.

CHIMNEYS.

Sec. 9. All chimneys and flues hereafter constructed in the City of _____ except patent chimneys, shall be of brick or stone; their enclosing walls shall be not less than 4 inches thick, and shall, if less than 8 inches thick, be lined on the inside with well-burnt clay or terra cotta pipe not less than one inch thick. Said lining shall start from the bottom of a flue or the throat of a fireplace, be continuous to the top of the flue and shall be built in and bricked around as carried up. Flues where lining is not required by this ordinance shall have the joints struck smooth on the inside. Where such chimney is built in a wooden building and extended into the lower story of such building, then such chimney shall start from the ground and shall be erected on a permanent foundation of its own separate from the building. Such chimneys shall not be increased in size in the upper story and shall extend at least three feet above the roof or as much higher as will be necessary to insure the safety of surrounding buildings. No sills, plates, floor joists, rafters or the headers thereof shall rest in or on said chimney, but there shall be perfect freedom between all frame work and said chimney.

PATENT CHIMNEYS.

Sec. 10. All "patent chimneys" shall be built up from the floor on which they are used, and in no case shall a stovepipe enter a patent chimney less than six inches from the bottom of such chimney.

If a patent chimney be erected on the outside of a building it shall rest on a substantial iron bracket, in which case the bracket must be of metal and fastened to the studding with bolts and nuts; screws or lag screws shall not be allowed for this purpose.

When a patent chimney is erected on the inside of a building it shall rest on an iron plate not less than $\frac{1}{4}$ inch in thickness, and shall have not less than 2 courses of brick on top of said iron plate. It shall have a smokeproof opening near the

bottom for cleaning it. All patent chimneys shall be braced every four feet of their height. All joints must be cemented, and the bands covering the joints shall be made of the best No. 24 iron and filled with cement to make them smoke and spark proof.

The term "Patent Chimneys" shall be understood to mean a terra cotta flue at least six inches square or six inches in diameter, measured on the inside, with walls at least one inch thick. Such flue shall be entirely surrounded with a continuous metal covering and have an air space between the flue and said metal covering of not less than one-half inch.

FIREPLACES.

Sec. 11. All fireplaces and chimney breasts where mantels are placed, except as provided for patent chimney fire places, whether intended for ordinary fireplaces or not, shall have trimmer arches to support the hearth; said arches shall be of brick, stone, burnt clay or concrete at least 20 inches wide, measured from the face of the chimney breast, and their length shall be not less than the width of the chimney breast. Wood centers shall be removed from under trimmer arches, and no timber shall be placed under any fireplace or hearth. Hearths shall be of brick, tile or stone.

ELECTRICAL WORK.

Sec. 12. All electrical construction and all materials and apparatus used in connection with electrical work, and the operation of all electrical apparatus in the City of _____, shall be in conformity with the rules and regulations laid down in what is known as the National Electrical Code of 1911, a copy of which code is on file in the office of the City Clerk, and the same is hereby adopted as the specifications for all electrical work of construction and operation.

RUBBISH

Sec. 13. It shall be unlawful for any persons, firm, corporation, his, her or their agent, servant, representative or employee to permit paper, rags, waste or combustible rubbish of any character to accumulate in any quantity in any building, yard, alley or other place so as to increase the danger of fire. The accumulation of such rubbish is hereby declared to be a nuisance and it shall be the duty of the Fire Marshal or any police officer to see that such nuisances are abated immediately after discovery, using summary measures if necessary to effect immediate abatement.

FIRE MARSHALL AND DUTIES.

Sec. 14. The Chief of the Fire Department shall be ex-officio Fire Marshall, and also one of the police officers of the city; he is hereby authorized and empowered:

1st. To enforce all ordinances relating to the construction, management and condition of mercantile and other property within said city;

2nd. To supervise the construction of all buildings either new or under additions or repair;

3rd. To take summary action in carrying out of ordinances pertaining to the removal of rubbish in streets, alleys and yards.

The Fire Marshal shall report to the City Council monthly regarding the condition of the city as to all matters referring to fire prevention.

GASOLINE, ETC.

Sec. 15. It shall be unlawful for any person, firm, company or corporation to keep or store, or to permit the keeping or storing of, within any building or upon any premises, street or place in said city, any gasoline, benzine, naphtha, crude petroleum, or products of petroleum, or hydro-carbon liquid which will flash or emit an inflammable vapor at a temperature below one hundred and ten (110) degrees Fahrenheit, in quantities of more than five (5) gallons, without the written permission of the Fire Marshal. No more than five (5) gallons of any of the articles hereinbefore mentioned shall in any case be kept in any one place, except as in this ordinance

hereinafter provided, and any quantity in excess of five (5) gallons must be stored outside the walls of any building at a spot designated by the Fire Marshal or the City Council.

PERMITS TO KEEP GASOLINE, ETC.

Sec. 16. All applications for permission to store, keep on hand or use more than five (5) gallons of any of the hydro-carbon liquids mentioned in this ordinance shall cause to be posted conspicuously on his, her or their premises a notice to the effect that application will be made for such a permit. Said notice shall be posted at least one week before the filing of the application and be kept posted until said application is finally granted or denied.

If the quantity desired to be stored, kept or used is more than one hundred and ten (110) gallons, the application must be made to the City Council, which, before any action is taken thereon, shall refer the same to the Fire Marshal for investigation, which officer shall recommend the conditions advisable to be embodied in the resolution granting such privileges to the petitioners.

TANKS FOR GASOLINE, ETC.

Sec. 17. (a) On written permission of the City Council, it shall be lawful to keep or store any of the hydro-carbon liquids mentioned herein in quantities of more than one hundred and ten (110) gallons and up to three hundred (300) gallons, in which case the same shall be kept or stored in a tank constructed of not less than three-sixteenths (3-16) of an inch in thickness, riveted and caulked, coated with tar or other rust-resisting material; such tanks shall be buried outside the walls of any building or under the sidewalk, the top of same to be at least four (4) feet below the surface, and completely covered with at least four (4) feet of earth; provided, however, it shall not be necessary for the top of said tank to be more than eighteen inches below the ground if the surface above is covered with cement concrete and made impervious to all liquids. Said tank shall be supplied with proper feed pipe and pump, and each pump with an automatic cut-off. The tank shall be filled through a section of hose or pipe suitable for the purpose, directly connected to the tank delivery wagon, and which shall be detached from the feed pipe when not in service. Gravity pressure or syphon process for taking oil from said tank, will not be permitted.

(b) No can, tank, drum or other vessel containing any of the hydro-carbon liquids herein mentioned and having a capacity of five (5) gallons or more, shall be located nearer than twenty (20) feet from any furnace, stove or fire of any kind.

USE OF FUEL OIL, ETC.

Sec. 18. No person, firm, company or corporation shall construct, erect or maintain any plant, or use any device or apparatus for burning crude or fuel petroleum, or for generating a gas therefrom, for fuel purposes, without the approval of the City Council, and in such manner and location as said council shall deem safe to life and property, and then only when installed in accordance with the following specifications:

The storage tank shall be constructed of boiler iron or steel, not less than three-sixteenths (3-16) of an inch in thickness, the top of the same to be buried not less than four (4) feet underground, and located outside the foundation of any building, or under the sidewalk, close to the curb line; provided, however, it shall not be necessary for the top of said tank to be more than eighteen inches below the ground if the surface above is covered over with cement concrete and made impervious to all liquids.

The top of said tank must be below the level of the lowest pipe at which the oil is burned. The filling pipe shall not exceed twelve inches in diameter, and shall be closed by a screw cap. The tank must be ventilated by pipe not less than two (2)

inches in diameter, extending at least ten (10) feet above the ground, and provided with a return bend. The oil shall be pumped from the storage tanks to burners, the suction pipe to lead through the top of the tank and be provided with a shutoff valve near the burning point, independent of any valve that is part of the burner. The storage tank must be connected with a boiler by a steam pipe, which can, if desired, be connected with the overflow pipe. Such steam pipe must not be used for heating the oil in the tank, but it may be utilized for blowing out the storage tank when it is desired to enter and clean the same. Any arrangement for heating the oil must be effected by some device outside of the storage tank.

All storage tanks shall be located at the place directed by the Fire Marshal or City Council.

PENAL CLAUSE.

Sec. 19. Every person, firm or corporation or his, her or their agent, servant, representative or employee, violating any of the provisions of this ordinance shall be guilty of a misdemeanor and, upon conviction thereof, shall be punished by a fine of not less than ten dollars nor more than one hundred dollars, or by imprisonment in the County Jail or jail of said city for not more than thirty days, or by both such fine and imprisonment; every day's continuance of a violation of any of the provisions of this ordinance shall be deemed a separate and distinct offense, and shall be punishable accordingly.

REPEAL OF CONFLICTING ORDINANCES.

Sec. 20. All ordinances or parts of ordinances in conflict herewith are hereby repealed.

Sec. 21. This ordinance shall go into effect thirty days after its final passage.



A MODEL FORM OF "NOTICE TO BIDDERS" FOR ADVERTISING FOR FIRE HOSE

The same committee that served in framing a model fire ordinance were waited upon by the representatives of half a dozen dealers in fire hose and fire apparatus and asked to adopt a model form for advertising for proposals. With the assistance of the hose men present it was unanimously agreed that the following form covered all requirements, and it was thereupon adopted:

PROPOSALS FOR FIRE HOSE

Bids will be received at the office of the undersigned until 8 o'clock p. m. on Monday, February 19th, 1912, for the furnishing of 3000 feet of 2½-inch Fire Hose, coupled in sections of fifty feet each, with Expansion Ring Couplings, equipped with Pacific Coast thread.

The hose may be rubber or cotton rub-

ber lined, either double jacket or multiple woven.

Bidders must state brand or brands of hose bid upon and samples not less than six inches long must accompany each proposal. All hose must be guaranteed to withstand a test pressure of 400 pounds per square inch when delivered and guaranteed against defect in material or workmanship for a period of three years from date of purchase. Samples to be submitted to Fire Committee and Chief Engineer of the Fire Department.

A certified check upon a responsible bank, payable to the City Clerk for an amount equal to not less than ten (10) per cent of the proposal must accompany each bid.

The Board of Trustees reserves the right to reject any and all bids.

M. J. DESMOND,
City Clerk,

Sacramento, Cal., February 12, 1912.

The proposition of using specifications in advertising for fire hose was strongly condemned on the ground that such specifications served no useful purpose, but on the contrary were generally designed to favor some dealer and shut out others. Cities and towns that want free and unrestricted

bidding on fire hose are advised to use the foregoing form.

A sub-committee of the dealers present was then appointed to prepare model specifications to be used in advertising for motor fire apparatus, and thereafter they submitted the following:



MODEL

SPECIFICATIONS FOR MOTOR COMBINATION CHEMICAL ENGINE AND HOSE CAR FOR THE CITY OF _____, CALIFORNIA

The following specifications have been adopted with two objects in view, namely:

First—To secure free and open competition among all responsible manufacturers of Motor Driven Fire Apparatus irrespective of the type or style of apparatus offered.

Second—To allow the Trustees of the City of _____, to receive detailed specifications from all the manufacturers of fire apparatus, in order that they may in their judgment select what is best adapted to their city's needs.

All apparatus bid upon, must be of the latest and most approved design and built with careful consideration as to symmetrical proportions, distribution of load and simplicity of details. Particular attention to be given to bracing and strength to withstand the severe strain incident to Fire Department Service.

The bids submitted must conform to these general specifications, but the details of construction, will in each instance be left entirely to the discretion of the manufacturer.

MOTOR

Motor may be any cycle, but must have not less than four (4) cylinders, and the engine must be compact and powerful enough to do work in a satisfactory manner. Motor to be of not less than 40 horse power, according to the A. L. A. M. Standard.

IGNITION

Motor must be fitted with two separate sets of ignition, so arranged that both can be used, or that either may be used entirely independent of the other. One set must

be run in connection with some Standard High Tension Magneto, and the other from any standard coil with storage battery.

CARBURETION

The Carburetor may be of any standard manufacture, best suited to the motor used in the apparatus adopted.

COOLING

Any system of water or air, but in either case, cooling must be efficient enough to take care of the motor under reasonable work.

TRANSMISSION

Selective type, of three or four speeds forward and one reverse, four speeds preferred. All shifts to be made by one lever.

CONTROL

Throttle and spark hand levers in steering wheel, with foot pedal accelerator.

CLUTCH

Any type clutch that will hold without slipping under hard pull and will not jar or jerk excessively when starting.

DRIVE

Drive must be double chain. The rear axle must have struts on both sides and not depend upon the springs to take the driving strain.

FRONT AXLE

Of Tubular or "I" Bent type, "I" Beam preferred.

WHEELS

Artillery type, wooden wheels, to be the best the market affords, outside diameter of which shall be not less than 38 inches; spokes not less than 2½ inches in diameter.

TIRE EQUIPMENT

Either pneumatic or solid tires may be bid upon, as best suited the apparatus of-

fered, but if the pneumatic tires are used, they must be mounted on quick detachable rims.

MINOR DETAILS

The exhaust pipe must be equipped with a cutout.

The frame may be either pressed steel or channel steel, but must be amply strong to stand maximum load.

The wheel base must be not less than 124 inches.

Oiling system must be mechanical.

The tread to be not less than 56 inches, which is known as the standard tread for all automobiles.

LIGHTING SYSTEM

Two 10-inch electric headlights of any standard make.

Two electric side lamps.

One rear electric lamp. All connected to batteries and wired to light any two lamps independently.

One 12-inch searchlight mounted on dash so as to be adjustable either side ways or vertically, and must be mounted in such position as to be within easy reach of the driver.

One standard model "B" Prest-O-Lite tank to fit search light on dash, with electric attachment for instantaneous lighting.

BATTERY EQUIPMENT

One 6-volt storage battery for spark coils.

One 6-volt storage battery for lighting system.

HOSE BODY

Body must be amply large to carry at least 1000 feet of 2½-inch fire hose in bed, rear end of body fitted with friction rollers to allow easy laying of hose, besides such other equipment as the manufacturers' specifications may call for.

EQUIPMENT

Two 30 gallon chemical tanks, with extra jars and holders and connections for 2-inch water hose (or 2½-inch).

200 feet of 1-inch chemical hose (or ¾-inch which is large enough for this size tank).

2 three gallon hand extinguishers.

1 twenty-foot extension ladder, to be mounted on each side of car.

1 ten-foot roof ladder, with hooks, mounted on side of car).

2 fire axes.

4 firemen's lanterns.

1 gong, at least 12 inches in diameter (or 1 bell as preferred).

1 pike pole.

1 door opener.

1 set fire chains.

1 speedometer.

Receptable for chemical hose to be reel, or any other practical attachment, but either must be so arranged as to allow the

hose to be removed from either side of the machine.

EQUIPMENT REGARDING SPEED AND POWER

Apparatus must be able to maintain a speed of 45 miles per hour on level roads when fully manned and equipped. Car must show plenty of speed and power on the hills.

GUARANTEE

Any parts breaking on account of defective materials or poor workmanship must be replaced. State in your bid guarantee. State probable time of delivery.

GENERAL REMARKS

The Trustees of the City of desire to secure all that is good and best in their apparatus, and therefore require that if anything be furnished in addition to the things which are enumerated in the foregoing specifications, that it be mentioned in the bid.

No bid submitted upon any apparatus, not designed and built expressly for Fire Department service, will be considered.

The successful bidder will be required to enter into a written guarantee with the City, that all material and workmanship entering into the construction of the apparatus shall be the best obtainable, and that he will, at his own expense, replace such parts as may fail, if such failure is due to defective material or inferior workmanship, and that the apparatus when intelligently operated will fulfill all of its requirements.

Adopted and approved at a regular meeting of the Board of Trustees of the City of, held on the day of, 19.....

"DEFINITIONS"-Motor apparatus

MOTOR FIRE ENGINE

This is a straight pumping engine without any provisions for carrying fire hose.

MOTOR CHEMICAL ENGINE

This is a straight chemical engine with one or more chemical tanks, chemical hose, etc., but with no provision for carrying fire hose.

MOTOR HOSE CAR

This is merely a motor-driven hose wagon for the carrying of standard fire hose. Often made with a capacity of from 1000 to 3000 feet of hose.

MOTOR FIRE ENGINE AND HOSE CAR

This consists of a straight pumping engine, provided with a body with a capacity to carry 800 to 1500 feet of fire hose.

MOTOR COMBINATION CHEMICAL AND HOSE CAR

This is a combination of such chemical equipment as may be specified, with a body capable of carrying 800 to 1500 feet of standard fire hose.

MOTOR TRIPLE COMBINATION—FIRE ENGINE, CHEMICAL AND HOSE CART

This is a combination of such chemical pieces of apparatus, viz: pumping engine, chemical engine and a body carrying whatever amount of fire hose is specified.

MOTOR AERIAL HOOK AND LADDER TRUCK

This is an automatic or manual quick-raising aerial ladder, mounted on a motor-driven chassis.

MOTOR SERVICE HOOK AND LADDER TRUCK

This is, as its name implies, the equipment of ladders usually carried on old

horse-drawn hook-and-ladder trucks, with fire apparatus usually a part of same, except that this is mounted on a motor-driven chassis.

MOTOR CHIEF'S CAR

This is a Chief's automobile with a carrying capacity of three or more men, which may be equipped with one or more chemical tanks and other emergency apparatus.

MOTOR SQUAD WAGON

This is a motor-driven wagon capable of carrying six or more men. May be equipped with one or more chemical tanks and provision made to carry such other equipment as may be required.

MOTOR POLICE WAGON

This apparatus is for the transportation of a number of policemen or for the conveyance of prisoners.

"Fire and Water Engineering," January 24, 1912.

THE VALUE OF MOTOR FIRE APPARATUS

Mr. W. J. Locke, Managing Editor
Pacific Municipalities:

Dear Sir: Your inquiry regarding my estimation of the value of motor fire apparatus was duly received.

After over two and one-half years' experience with an automobile pumping engine I unhesitatingly say that the use of motor-driven fire apparatus is almost as great a stride forward as was the change from volunteer firemen and the hand-drawn engines and carts to horses and paid men. We have never failed to start in good time and have always "got there" afterward, thus proving to be fully as reliable as the horse-drawn engines.

The principal advantages of motor-driven over horse-driven fire rigs is speed in going to and returning from fires, thereby covering more territory; safety when on the road, being quicker to stop or turn; and, most momentous item, economy. The running expense of our auto-engine last year was ten cents less than the cost of the shoes for the steam fire engine team during the same period.

Our motor-engine has done work which would be impossible with a steam fire engine, notably at the High Street bridge fire, with the nearest hydrant some 2,000 feet away and no

fresh water nearby to feed a steam engine boiler. One-third of the bridge, over the Tidal Canal, was on fire above and below and the remaining two-thirds was burning underneath. We tore up planks on the footpath, connected the suction and two lines of fire hose to the engine, and, when the signal was given, the engine was run on the burning bridge, the men carrying the suction and fire hose along with it, and the flames and smoke coming up through the cracks between the planking. On the instant that the engine came opposite the hole prepared in the footpath the suction was lowered to the water, 17 feet below, the pump clutch was thrown in and in fifteen seconds water was coming through the nozzles—one on top of the bridge driveway and the other beneath it. Through the use of the motor engine the draw and the Alameda approach to the bridge were saved with comparatively small damage.

In my opinion a combination chemical engine and hosewagon is the most desirable piece of apparatus for a small town; provided, there is a fair water pressure on the mains. Yours very truly,

FRED K KRAUTH, Jr.,
Chief Fire Dep't City of Alameda.



EDITORIAL



DEFECTS IN THE RECALL

The number of recall petitions now being circulated in various municipalities throughout the state is an indication that the procedure laid down is probably defective. The calling of a "recall" election should not be so easy as to enable disgruntled politicians to harass and annoy those holding public office.

It would be an improvement if the law were amended so as to provide that the reasons for the proposed recall, together with the justification of the official sought to be recalled, be published together in a newspaper several weeks preceding the circulation of the petition. This would enable the voters to become familiar with the arguments before signing a petition, as they should be.

Another amendment suggested is one requiring that the person to be elected at a "recall" election receive not only more votes than the incumbent but also more votes than the incumbent originally received when first elected. The argument is that the one chosen at a "recall" election should be the choice of at least as many voters as the incumbent was originally. This strikes one at first as being nothing more than fair, but on reflection we are inclined to think it unsound, as special elections never bring out all the votes; besides, the fact that an official was the choice of a certain number of voters at a previous election is no evidence that he is still their choice.

Nevertheless, the procedure necessary for bringing about a "recall" election should not be so easy as to

permit every Tom, Dick or Harry, having a grudge against the government, to plunge public affairs in a turmoil on the least provocation. Another thing, special elections cost money.



NEW OFFICIALS.

On April 8, new officials will be elected in all the cities of the sixth class in California. One of their first duties will be the appointment of the administration officers, such as marshal, attorney, street superintendent, engineer, etc. It is a great misfortune when any consideration other than efficiency enters into the making of these appointments. It is a sad thing to see an efficient officer of long experience dismissed to make room for some political favorite. Unfortunately, this is one of the weakest spots in our system of government.

Those who are chosen for public office are often the "good fellows", not the men of ability. They are selected because of their good fellowship, because they are always around with the boys. Ability is the last consideration looked for. The men of ability are invariably too busy to spend the time cultivating that acquaintanceship necessary to become a "good fellow". As a result many of our municipalities are not governed by men "who know how;" in fact, such men are often dismissed because of some fancied offense to some political faction. It takes years of experience to become a good street superintendent or a good city attorney, and when for any reason a municipality loses such a man, it is a great misfortune.



Q When a man feels the necessity of being in two places at the same time he goes to the nearest telephone and sends his voice. It is not exactly the same thing but when a man talks hundreds of miles in opposite directions from the same Bell Telephone, it is about as good. In the daily use of the telephone a man travels all over town by wire in a few minutes. It is just as easy to travel all over the state and other states by means of the universal Long Distance Service of the Bell System.



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Every Bell Telephone is the Center of the System



QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry.

Q. Is it necessary to purchase ballot paper direct from the Secretary of State?

ANS. No.

Q. If the curb line is moved out two feet in order to save trees, will it invalidate proceedings already commenced?

ANS. Yes, unless waivers are secured from property-owners, better start new proceedings.

Q. May a person withdraw his name from a petition under the initiative?

ANS. We think it may be done prior to consideration of the petition by the council, though there is no provision for it in the law.

Q. If the council allows a protest under the "Improvement Act of 1911", may it reconsider the protest at the next meeting?

ANS. No; you must go through new proceedings.

Q. The new election laws dispensing with "ballot clerks" and "instructions to voters" are not operative until March 23d midnight. Should our election proceedings commenced previous to this date recognize the old or new law?

ANS. We think either will be valid, but believe it will be safe to anticipate the new law.

What the Cities are Doing

Oakland's fire chief wants three new fire houses.

Sanger votes \$60,000 for a high school building.

Fort Bragg may bond for street improvements.

Hillsborough has voted bonds for street improvements.

Newport Beach votes \$27,000 for more school facilities.

Eureka is considering the construction poles for street lamps.

Rio Vista has voted \$25,000 for a sewer system and enlarging the municipal water system.

Stockton's fire chief recommends additional motor apparatus.

Riverside proposes to purchase two public service motor vehicles.

Alhambra may bond for street improvements, city hall and fire apparatus.

Anaheim may use ornamental concrete poles for street lamps.

San Leandro may bond for street improvements, city hall and fire apparatus.

Selma is considering a bond issue for modern fire apparatus, also a public park.

Sisson will vote on April 2 for a sewer system, municipal water works and a municipal building.

Hermosa Beach will vote on a bond issue for a 1000-foot pier, 700 feet of which is to be concrete.

Visalia has learned that the fire which recently destroyed the high school was caused by waste oil rags.

Wainwright Galvanized Steel Corner Bar

For Protecting Edges of Concrete Curbs, Steps, Columns, Etc.

This bar is Self Anchoring, the Dovetailed Web holding it firmly in place Every Inch of its Length, requiring no hooks, clips, bolts or wires at intervals allowing buckling or expansion, resulting in loosening of other devices

IT HAS A RECORD OF TEN YEARS' USE WITHOUT FAILURE

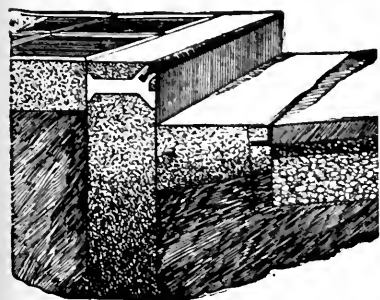
This bar is the main feature of the

WAINWRIGHT STEEL-BOUND CONCRETE CURB

WAINWRIGHT PATENTS—March 9, 1897. November 22, 1898. May 5, 1903.
March 26, 1907. August 29, 1907. August 2, 1910.

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OVER FOUR MILLION FEET**

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**Absolutely Non-Breakable
Cheaper Than Granite
GALVANIZED STEEL CORNER BAR Prevents Chipping or
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**THIS CURB WILL STAND HARDER USE AND LAST TEN
TIMES AS LONG AS PLAIN CONCRETE CURBING.**

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City Engineers can save money by specifying it.

**Architects are invited to read pages 242 and 243 "Sweet's
Index."**

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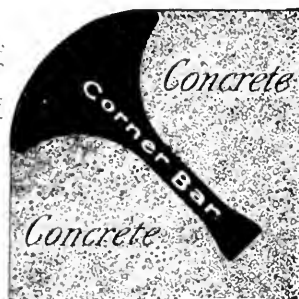
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Seattle, P. W. Smith, 1900 Fourth Ave., North
San Francisco, R. C. Oliphant, Williams Building
Los Angeles, Tood-Chase Co., Security Building

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LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

Write for Catalogs. Mention Pacific Municipalities When Writing

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S.F.

Asphalt Machinery

A. L. Young M'chy Co., 26-28 Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Arch. Terra Cotta

Gladding, McBean & Co., Crocker Bldg, S.F.
Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Automobile Public Service Wagons

American La France Fire Eng. Co., 660 Mission St., S. F.
Gorham Eng. & Fire App. Co., 48 Fremont St. S. F.
Webb Motor Fire Apparatus Co., 550 Montgomery St., S. F.

Bells

W. T. Garratt & Co., 277-279 Fremont St, S.F.

Bitulithic Pavement

Warren Brothers Company, Los Angeles, Cal.

Concrete Construction

Esterly Con. Co., Inc., 717 Market St., S. F.

Concrete Mixers

Barber Asphalt Paving Co., S. F. & L. A.
Parrott & Co., San Francisco & Los Angeles

Constructing Engineers

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.
American Engineering Corporation, 57 Post St., S. F.
Stephen E. Kieffer, 1st Natl. Bank, Oakland
Nelson & Piper, 618 Mchts Trust Bldg., L. A.
Roberts & Dennicke, Sheldon Bldg., S. F.
Shippman, Denny & Rhane, Atlas Bldg., S.F.

Culverts

Cal. Corrugated Culvert Co., Los Angeles and W. Berkeley
Standard Corrugated Pipe Co., S. F. & L. A.
U. S. Pipe Co., S. F.

Dump Carts and Wagons

A. L. Young M'chy Co., 26-28 Fremont St., S.F.
Watson Wagon Co., Canastota, N. Y.

Electrical Plants & Machinery

A. L. Young M'chy Co., Fremont St., S. F.

Engravers and Bond Printers

A. Carlisle & Co., 251 Bush St., S. F.
Sierra Art Eng. Co., Front & Com. Sts., S. F.

Engineers' Supplies

W. T. Garratt & Co., 277-279 Fremont St, S.F.

Fire Department Equipment

Gorham Eng. & Fire App. Co., 48 Fremont F. S.

Fire Engines

Gorham Eng & Fire App Co., 48 Fremont St S. F.

Fire Hose

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.
Gorham Eng & Fire App Co., 48 Fremont St S. F.

The Gutta Percha & Rubber Mfg. Co., 34 Fremont St., S. F.

The Diamond Rubber Co.

Eureka Fire Hose Mfg. Co., 54-58 Fremont St., S. F.

Bowers Rubber Works, San Francisco

Fire and Police Boats

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Pumps

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Gasoline Engines

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Hydrants

Water Works Supply Co., Monadnock Bldg., S. F.

Inspections and Tests

Robt. W. Hunt & Co., 418 Montgomery, S. F

Machine Works

W. T. Garratt & Co., 227-229 Fremont St, S.F.

Municipal Accountant

William Dolge, C. P. A., 311 California St., S.F.

Municipal Castings

Geo. E. Dow Pumping Engine Co, S.F. & L.A.
Pacific Foundry Co., 18th & Harrison, S. F.

Municipal Engineers

Sloan & Robson, Nevada Bank Bldg, S. F.
Roberts & Denicke, 461 Market St., S. F.
Shippman, Denny & Rhane, Atlas Bldg., S.F.

Municipal Printers

A. Carlisle & Co., 251-253 Bush St., S. F.

Municipal Water Works

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Office Furniture

H. S. Crocker Co., 674 Mission St.

Packings

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Pavement Materials

Barber Asphalt Paving Co., S.F. and L. A.
Warren Brothers Company, Los Angeles, Cal.

Pipes

U. S. Iron Pipe & Foundry Co., 701 Monadnock Bldg., S. F.

Pumping Machinery & Supplies

W. T. Garratt & Co., 277-279 Fremont St, S.F.
Geo. E. Dow Pumping Engine Co, S.F. & L.A.
Water Works Supply Co., Monadnock Bldg., S. F.

LIST OF RESPONSIBLE FIRMS—Continued**Playground Apparatus**

A. L. Young Machinery Co., S. F.

Road Machinery

The Good Roads Mach'y Co., Ft. Wayne, Ind.
 A. L. Young M'chy Co., Fremont St., S. F.
 Barber Asphalt Paving Co., S. F. & L. A.

Roofing

Barber Asphalt Paving Co., S. F. and L. A.

Rubber Goods

Gorham-Revere Rubber Co., 50-60 Fremont
 St., S. F.; 1237 S. Olive St., Los Angeles.
 The Diamond Rubber Co.
 Bowers Rubber Works, San Francisco

Sanitation Expert

Harold Farnsworth Gray, Berkeley, Cal.

Scrapers

A. L. Young M'chy Co., Fremont St., S. F.

Septic Tanks

Pacific Flush Tank Co., Chicago.

Sewage Pumps

Geo. E. Dow Pumping Engine Co, S.F.& L.A.

Sewer (Concrete)

Esterly Con. Co., Inc., 717 Market St., S. F.

Sewer Fittings

Pacific Foundry Co., 18th & Harrison, S. F.
 Pacific Flush Tank Co., Chicago.

Sewer Pipe and Terra Cotta

Gladding, McBean & Co., Crocker Bldg, S. F.
 Steiger Terra Cotta Co., Mills Bldg., S. F.
 N. Clark & Sons, 112-116 Natoma St., S. F.

Sewer Systems

Sloan & Robson, Nevada Bank Bldg., S. F.

Street Sweepers

A. L. Young M'chy Co., Fremont St., S. F.

Suction Hose

Gorham-Revere Rubber Co., 50-60 Fremont
 St., S. F.; 1237 S. Olive St., Los Angeles.

Water Meters

Neptune Meter Co., S. F. & L. A.
 Water Works Supply Co., Monadnock Bldg.,
 S. F.

Water Works Equipment

Water Works Supply Co., Monadnock Bldg.,
 S. F.
 Geo. E. Dow Pumping Engine Co, S.F.& L.A.

Wires

John A. Roebling's Sons Co., S. F.
 Water Works Supply Co., Monadnock Bldg.,
 S. F.

Valves

Water Works Supply Co., Monadnock Bldg.,
 S. F.
 Gorham-Revere Rubber Co., 50-60 Fremont
 St., S. F.; 1237 S. Olive St., Los Angeles.

Sidewalks (Cement)

Esterly Con. Co., Inc., 717 Market St., S. F.
 Steel Protected Concrete Co., Phila., Pa.

Street Signs

A. L. Young Mch. Co., S. F.
 California Metal Enameling Co., Bairdstown,
 L. A.

Insulated Wires and Cables

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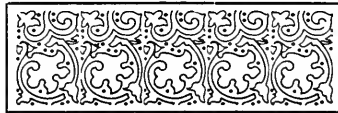
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Made from the Genuine Trinidad Lake Asphalt,
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Products, (the Machinery Department of The Barber Asphalt Paving Company) include Macadam and Tandem Asphalt Rollers, Asphalt Plants, Asphalt and Tar Mixers, Surface Heaters, Fire Wagons, Sand Dryers, and all road making and paving machinery and tools.

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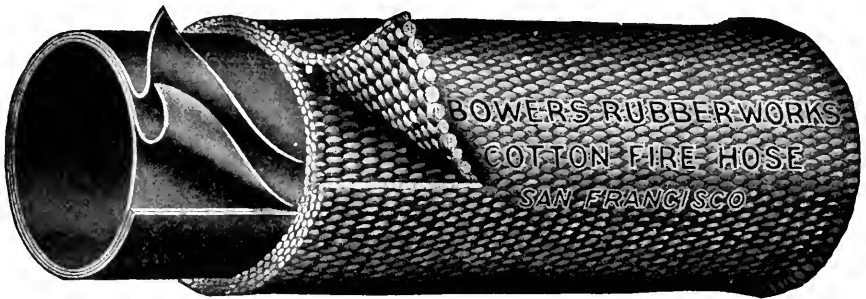
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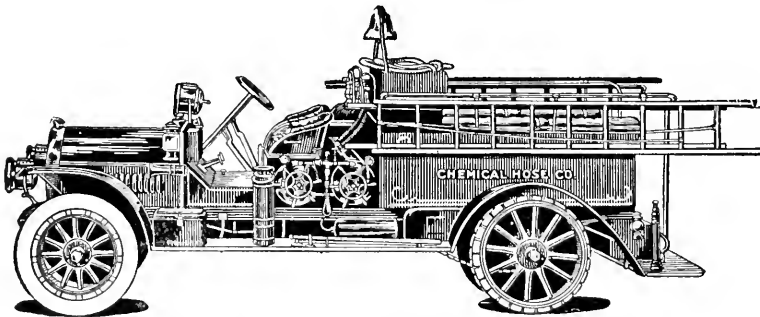
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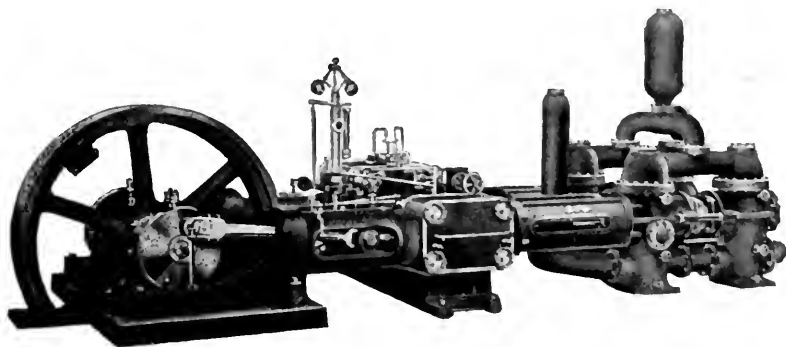
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This pump was developed and is made in California. It has a remarkable record for efficiency and low upkeep expenses, but what is more important, it has an unbroken record for reliability. There is not a single recorded instance of failure when put to the test of fire fighting, it matters not how long or how heavy the service demanded.

This is the type of pump to buy for your town; the pump in which dependence can be placed at a critical time. It will be well for you to talk this matter of reliability over with our engineers.

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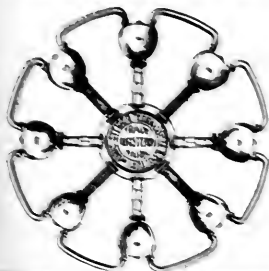
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All other makes of Motor-driven Hose Wagons, Chemical Engines and Combination Hose Wagons and Chemical Engines, in service in the State of California	17
All other makes of Motor Fire Apparatus as above; ordered for California Cities, but not delivered	5
"AUTO PUMPING ENGINES are not included in the above figures, because The Seagrave Company does not build them, therefore are not competitors for this kind of business."	

According to the above figures we have in service in this State more machines by 70. than all our competitors combined (and there are eight different makes in the 17) and we have more unfilled orders, according to the above, by 22 than all our competitors combined.

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Berkeley, California, September 23 to 28, 1912

in connection with the annual meeting of the State Board of Health and California Health Officers, we will have

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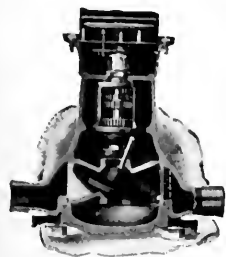
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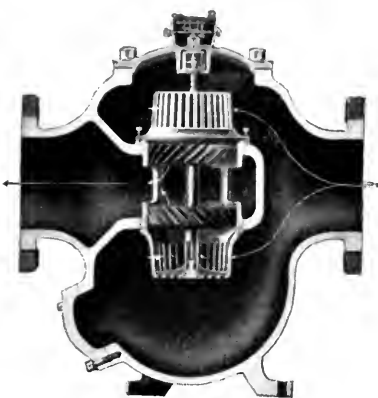
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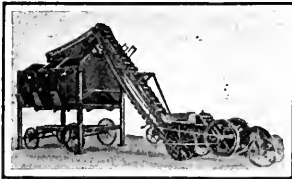
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Efficient, Serviceable and Convenient

Built in several sizes

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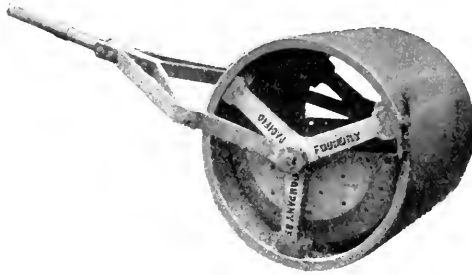
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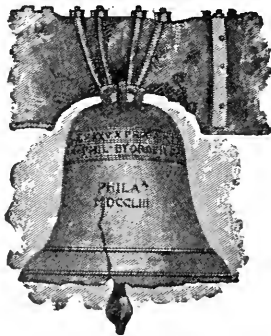


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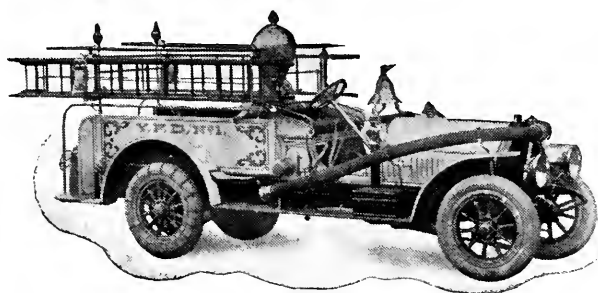
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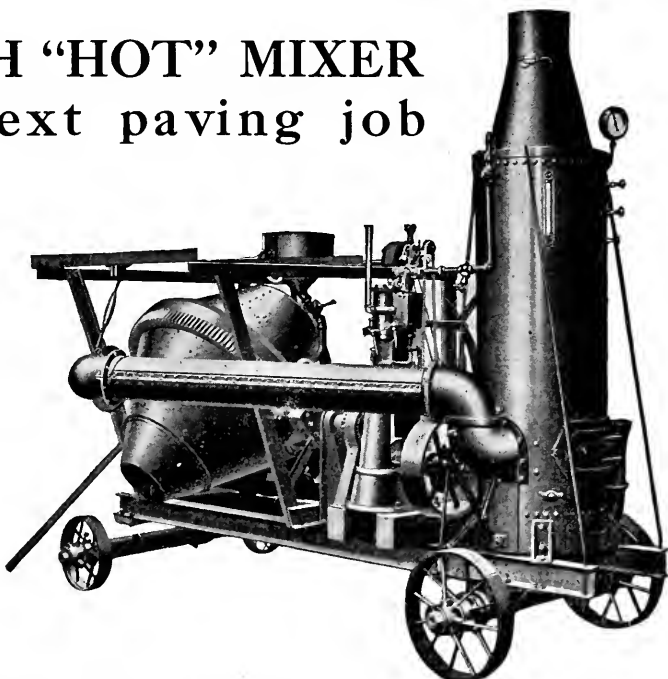
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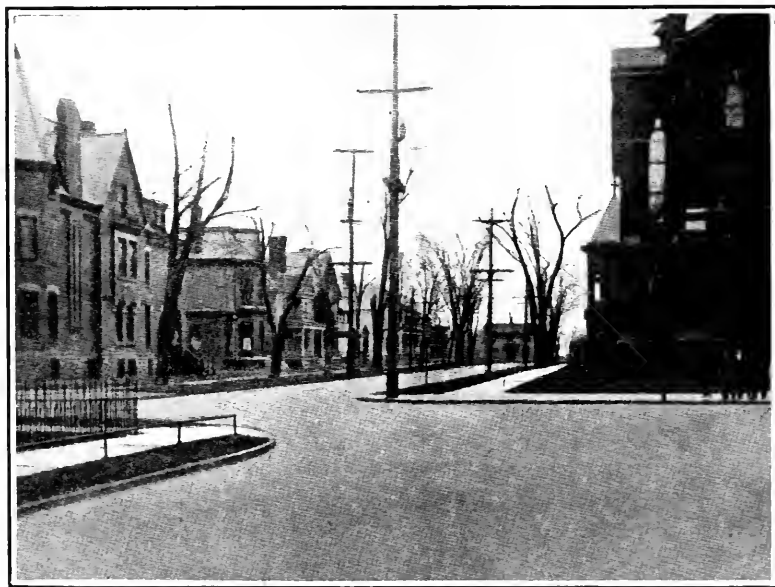
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OFFICIAL ORGAN OF THE LEAGUE OF CALIFORNIA MUNICIPALITIES

Entered at Post Office, Santa Clara, Cal., as Second-Class Matter

VOL. XXVI

FOURTEENTH YEAR

No. 4

EDITORS	-	-	-	H. A. MASON AND WM. J. LOCKE
EDITORIAL OFFICE	-			NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO
PUBLICATION OFFICE,	-	-	-	SANTA CLARA, CALIFORNIA

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Published Monthly. Yearly Subscription, \$2.00 in Advance. Single Copies, 25 Cents

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PACIFIC MUNICIPALITIES

A Journal for Progressive Cities

VOL. XXVI

APRIL 30, 1912

No. 4

MUNICIPAL DANCE HALLS

Written expressly for Pacific Municipalities by Jessica B. Peixotto, of the
Department of Economics, University of California

It is now generally recognized that all men play in more or less traditional ways, and that they must and should play. More particularly it is universally asserted that young persons should play, lest they miss the advantage of change and fall into rutted routine.

The moot point is what play? The ideals of the generation actually grown up circle about hours of leisure spent by the family fireside or at the fireside of one's neighbors. In the mind of the average public moralist any public amusement is at best a lure away from the essential training of home life; at worst, and most often, it is a snare of the devil. Forgetful of the fact that a home large enough for entertainment is fast becoming unattainable by the middle class and was never the portion of a good half of any community; unmindful of the other fact that since time immemorial the diversions of all but the privileged minority have taken place on the village green, the "Common land," these critics continue to protest public organization of recreation and to advocate the pleasures of the home.

It is because of this canon of conduct that a claim for a municipal control of amusement still has to be supported by arguments, and even when it is finally conceded that public amusements have a place, there is still a case to be made out for the dance and the public dance hall.

Of all forms of amusement, dancing is most open to debate. Absolutely tabooed by some, on sufferance with many, by all thinkers admittedly risking, by just the wrong accent, an undesirable stimulation of equivocal tastes, "the healthful art of dancing" has been left out of that reasoning process by whose beneficent touch things elemental become serviceable in more complex social life. The fact has been persistently overlooked that young people, and particularly young girls to whom for generations most other form of activity has been denied, instinctively turn to the dance as a vent for their emotions, as a rest after routine work and a "safety valve for surplus energy". In other words, while the dance has been so generally treated as unmoral, if not immoral, the public moralist to the

contrary notwithstanding, the mass of young people have danced and do dance. In all our large cities and probably also in our country districts the dance halls and the theatres draw the largest number of young people. In these days of keener sensitiveness to the situation of **all** citizens, of keener hope for the moralization of **all** who share in the civic life, cumulative testimony each year shows more clearly that a definite minority of them dance to their own destruction, and that the destroying agent is not the dance but the place in which the dance is held. A recreation which of all others has the most general appeal for the young of both sexes is, if all report be true, definitely controlled by public agents, not by a disinterested public authority aiming at social welfare, but by a group of persons seeking profit from the weaknesses of human nature.

For some five or ten years now, repeated and increasingly intensive investigation of dance halls in all our American cities yields the same conclusion. The dance hall today is everywhere found to be a place where space and music are provided for the dance, but this dance is really only the relatively harmless lure. The mischief arises because liquor is provided for quenching the thirst which the dance arouses. The dance hall keeper is primarily a "business" man, often an agent of a large business seeking the largest possible profit. To secure a numerous clientele, the actual fee for the dance must be small, and it is therefore not this fee which will yield the surplus. Our average dance hall keeper looks for profit to the thirst which comes from his heated rooms and the exercise of the dance. What

too often follows when the stimulation of alcohol is added to the whirl of the dance is a story now so often told that it should not need special accent. That the constant repetition of it must still go on for some time, however, is clear from such reports as the one on Public Dance Halls just published by the Juvenile Protective Association of Chicago. An investigation was undertaken by this association, which is doing such noble work for the young and old, between November, 1910, and March, 1911, during which time 278 dances were attended and 328 halls visited. It was found that about 86,000 people attended these 278 dances, and that in the majority of the halls the boys were between 16 and 18 years of age and the girls between 14 and 16. The ventilation was usually bad, lighting and fire protection often poor, and the conditions generally of a kind to make the road to debauchery easy and tawdrily attractive.

Above all, it was always and everywhere plain that the public dance halls of Chicago were largely controlled by the saloon and vice interests. Not only had "the recreation of thousands of young people been commercialized," but, in the search for profit, "the conditions existing in the dance halls" most insidiously changed "an innocent desire for dancing for social enjoyment into drunkenness, vice and debauchery. Saloon keepers and prostitutes are in many cases the only chaperones and in a majority of places even the young girls and boys fresh from school are plied with alcohol and with suggestion of vice until the dance ceases to be recreation and becomes flagrant immorality".

All this calls for action, and in an

age when we have consciously or unconsciously vowed ourselves to our own moralization by way of universal provision it calls for social action. All modern action for betterment seems primarily to imply not only social action but social action by way of substitution rather than repression, and in this immediate connection the imagination need not falter. For this gruesome picture of the dance hall as the lure back to the bestiality of the wilderness we need only substitute the picture of another type of dance hall. Here hilarity and sobriety shall go hand in hand with joy in rhythmic motion; here young and old shall get from the exercise the healthy stimulation and excitement which is its gift and their prerogative. Here bright lights shall stimulate and decorations be gaudy enough to meet elemental crave for color, and noise, plenty of it if it be not drunken uproar, be welcomed as evidence of that surplus vigor which is a nation's greatest wealth.

The real question is, of course, how to get and to keep this type of Dance Hall, but this problem, too, has ceased to many to seem difficult. Theory and what little there has been of practice shows plainly that the change required is a specially created Recreation Commission. The example of Milwaukee, New York, Columbus and Dayton, and the plans of a steadily increasing number of other cities go to show that a special authority with a clear program of action is the first necessary step. To create public dance halls and hand them over to police commissions, somewhat narrowed in vision by the persistent necessity of rubbing shoulders with the criminal class and much overburdened with problems of

repression, as has sometimes been proposed, would probably be to foredoom the movement to lamentable failure.

A Recreation Commission, then, seems the first real factor in a changed situation. The duties and powers of such a Commission would of course imply much more than dance hall supervision. In relation to the scheme here in question, however, the Commission would either monopolize the dance hall business or conduct it under a carefully protected licensed system; it would have under it a Dance Hall Inspector who, with a corps of assistants, paid and volunteer, would regularly inspect places where dancing took place as to the safety, sanitation and lighting of the premises, and the deportment of the habitués.

It seems probable that much could be done by some system of friendly supervision of those frequenting these places. The plan generally carried out by the Chicago Playgrounds Commission seems to follow the traditional lines of social gatherings. Its general principle is to allow or even to stimulate the formation of neighborhood groups or "social clubs", who preempt the recreation center for given evenings in the week. These clubs argue a personal acquaintance of the participants and thus some knowledge of who and what the members are. While snobbish requirements for membership could and should be firmly frowned upon, contact between reputable lives and those deliberately vicious can probably only be avoided in this way. Such neighborhood clubs, too, would probably assure the presence and even the participation of older members of the family, a situation much to be desired—all investigations and all experience suggest

that even when the risks of drink and sensuality have been removed from the dance hall without the club which guarantee some knowledge of the persons belonging, there still remains the danger of indiscriminate acquaintance and the danger implied when a young girl goes home with a newly-met, untried escort.

Failing a Recreation Commission, it has been found fruitful of results to subsidize and widely advertise dance halls which are known to be standard, a plan which brings increased patronage to these and of course works havoc with the profits of those of lower grade. In New York and at Coney Island, where this subsidy plan was tried, it seemed clear that most young people prefer respectability and will only risk character and reputation when crave for excitement can get no satisfaction except at the "cheap and nasty" place.

It was in Chicago, I believe, that some earnest men and women undertook to be omnipresent chaperones in all the dance halls in a given quarter of the city. To such a scheme there is little to give but admiration for an honest purpose. The plan asks for more personal sacrifice and implies more of patronage than a better, more universally applicable system of public control would call for. Sacrifice and patronage run equally counter to contemporary American standards and "reform" schemes have greater likelihood of success when they call for neither the one nor the other.

Subsidy and personal surveillance schemes are, then, equally half-way measures, promising neither the permanence of policy nor universal reach which a public organization for the control of all amusements might be expected to give.

To sum up: People will play, and young people above all will play by way of the dance and are playing in this way to their destruction and the community's great loss. The situation once plain, no commonwealth can afford to countenance its continuance. Of the many efforts to correct the situation which the past has seen, absolute repression writes failure every time because it is an attempt to dry up rivers which flow from time to eternity. Friendly intervention by ciceronage or subsidy lacks the continuity of policy and of backing that are necessary to success. The way out, then, does not seem to be repressive legislation nor philanthropic endeavor, but constructive legislation, the creation of a Commission, a Recreation Commission, with an executive secretary and a staff of assistants, who shall together plan and supervise public recreation and inspect and regulate recreation carried on for business enterprise. Any plan for public control undoubtedly in a democracy risks administrative awkwardness and even some official dishonesty, but these are bugaboos, not only becoming less formidable as our cities grow but certainly less formidable than a private greed which feeds upon the morals of the young. It seems, then, wise to inaugurate in every American city a general campaign to show (1) the inevitableness of dancing and (2) the facts now surrounding the dance hall; (3) to arouse a more definite appreciation of the difference between the amusement which curses and the amusement which benefits and to awaken a moving enthusiasm for the latter; (4) to preach and to teach the high social value of a Recreation Commission whose function it should be to secure these benefits to old and young in every community.

HEALTH VERSUS TAXES

By Harold F. Gray, Specialist on Sanitation, Berkeley, California. Written Expressly for Pacific Municipalities

The average citizen would rather spend ten dollars for a physician to cure him of a disease than part with ten cents in taxes to prevent that disease. He assumes that he may not get sick, and that it is of little consequence to him if his neighbor becomes sick. He thinks of the Health Officer, if he thinks of him at all, as some person who gets a few dollars from the city for smelling odors in Chinatown, but doesn't smell them. He sees nothing done by the Health Officer, usually nothing is done, and he believes that nothing can be done. The city has one because it is customary. If his city should consider improving its health conditions, he objects to any increase in funds for the Health Department because it will increase his taxes. The Health Officer already gets perhaps thirty dollars a month, and does nothing. Why send good money after bad?

Something is wrong with city health administration. Aside from the average man's ignorance as to what can be accomplished in the light of our present knowledge of disease prevention, he is often justified in suspecting attempts to increase the efficiency of the Health Department by giving it more funds. The whole proposition reduces to this; the Health Officer does little because he is paid little, and he is paid little because he does little.

Our present method of health administration has several faults. The state law requires in each incorporat-

ed city a Board of Health, consisting of five persons, one of whom must be a physician, and one, if practicable, a civil engineer. The Health Officer is usually a member of the Board of Health, a practicing physician, and performs his duties for the magnificent sum of perhaps thirty dollars a month. Often he serves gratis. Think of it. For thirty dollars, more or less, a month, a man undertakes to safeguard the life and health of a community of say five thousand souls. For protection from violence the same community will spend not less than five hundred dollars a month. And yet a man has as much right to sand-bag you in a dark alley as he has to give you disease germs, which, though slower, work just as effectively.

The members of the Board of Health meet perhaps once a month, and listen to a report by the Health Officer, in which he states with monotonous regularity that there have been a few cases of measles and mumps, that Jim Jones' privy emitted a foul odor and was treated with chloride of lime, and that the sanitary condition of the town is good. They adjourn, go home, and forget all about it until the next month. Perhaps three of the five members were at the meeting. Three statues would have done as much actual good to the community.

The Health Officer is usually a local practicing physician. If he is a good physician his private practice does not

permit him to give the time necessary to attend properly to the duties of his position. He has been trained to cure disease, not prevent it. He is concerned primarily with individuals, not with communities and the inter-relations of individuals. He knows little about water-supply, sewerage, garbage disposal, pure milk, food sanitation, housing and many other factors which are connected with the public health. He cannot afford to enforce the law, for he sooner or later would be compelled to prosecute a friend, neighbor or patient. He is not going to lose friends or profitable patients because of a mere violation of the law.

Most of our present local health laws are relics of a past age, when people believed in spontaneous generation and odors as the cause of disease. These laws need complete revision to accord with our present more exact knowledge of the principles of disease prevention, but it will be a waste of time to revise them until provision for their enforcement is made. Bad as the present laws are, they will do much good if only enforced.

I believe that these are the average conditions in our towns and small cities in California. I may be wrong in so believing, but I am sure that conditions are not much better. We undoubtedly have many Health Officers who are earnest and conscientious men, but they cannot get results under the present system. The people are becoming aware that better things are possible, and are beginning to demand that their health be safeguarded by better and more scientific methods. The popular public health campaigns which several communities have carried on in the last two years show this.

What must be done, and how shall it be done?

Three things are essential. More education in regard to health preservation and disease prevention, more funds for the Health Department, and better Health Officers. There are two ways in which these essentials can be obtained. One way would be to foster our present educational campaign for better health, and in time the people would demand better health protective measures. This would be a slow, but sure, way. The other way would be for the City Trustees or Councilmen to take the initiative in the matter, employ a competent and trained Health Officer, back him up with funds and authority, and turn him loose. The Health Officer would do a large amount of educational work, and after a year of such improved conditions the people would not go back to the old way. Undoubtedly much opposition would be met with at the start from many well meaning people, but in the end the only objections would come from the vicious and dishonest.

Our local Boards of Health are useless. They should be abolished, and their place taken by competent Health Officers who give their entire time to their duties, and who are paid adequate salaries. The Health Officer should not be a local man. He should have been trained in one of our good universities, where special courses are given in disease prevention and sanitation. He must be a good executive, and must have a pleasing personality. He should be a good publicist and educator, but above all must be fearless, conscientious and thorough.

To get such a man more money must be given to the Health Depart-

ment. Where is it coming from? Can it be obtained without raising the present tax rate? For the present, perhaps not. Eventually, yes. There are few towns where a careful scrutiny of expenses will not show economies possible, and the money so saved in other departments could be diverted for the use of the Health Department, and the remainder of the funds required obtained by a slight increase in taxes. Efficient health protection will mean a more healthy, and therefore a more prosperous, community. Values will increase, and the tax rate can be lowered.

According to conservative estimates, California loses each year, from the five great preventable diseases, the enormous sum of seventy million dollars. Considering all the

preventable diseases, the actual loss is probably more than twice as great. This absolutely preventable loss is the price of public parsimony in matters of health. We have been wasting at the bung hole while trying to save at the spigot. In health matters public parsimony is a not merely folly; it is criminal.

We have come to the point where we must begin to conserve our natural resources. Surely life, health and happiness are the greatest of the nation's natural resources, for without them material things are useless to us. With our present methods of health protection we can accomplish very little. With improved methods, the possibilities are limited only by the efficiency and earnestness of our public officers.



THE PARKS AND PLAYGROUNDS OF ALAMEDA

Written Expressly for Pacific Municipalities by John S. Gutleben, Superintendent

The public park and playground provision of Alameda consists of four spaces known as Washington, McKinley, Jackson and Lincoln Parks. The size of these parks is respectively 320x700, 225x660, 120x1050, 310x1500 feet, making an aggregate area of 22 acres.

The distribution of the four parks is remarkably appropriate and constitutes an unusually well arranged park system, considering especially the fact that such arrangement is generally governed by chance—the demand for parks in the history of any city not arising until the most suitable sites

are occupied by expensive structures and the selection of park space being then directed by the law of “the line of least resistance.”

The first of these parks in the order named is situated at the west end of Alameda and has connected with it a water front together with a stretch of beautiful sandy beach. In giving the dimensions of this park only the distance to the beach is reckoned. Within its scope, however, must also be considered the stretch of sandy beach, the long distance of shallow water suitable for wading and swimming, and above all the unobstructed vision

into a beautiful marine view. As the satisfaction to the eye by an aspect of nature is one of the chief objects aimed at in the institution of parks, this later feature, though not embraced within the confines indicated by yards and feet is nevertheless a most important portion of this park and in a description of the same it must therefore be included as essentially a component part. To express more clearly this idea in the words of Emerson, "The charming landscape which I saw this morning is indubitably made up of some twenty to thirty farms. Miller owns this field, Locke that, and Manning the woodland beyond. But none owns the landscape. There is property in the horizon which no man has but he whose eye can integrate all the parts. This is the best part of these men's farms, yet to this their warranty deeds give no title." Unlike with land purchased for agricultural use when the community secures possession of a certain domain to set aside for park purposes the public indicates by the very fact of the object for which acquired that it lays particular claim to the landscape or at least that it regards this as a most important consideration influencing the purchase.

At the extreme eastern end of the island city it situated Lincoln Park. Though the same warranty deed restrictions apply to this space as to the one just described it is endowed with even greater comprehensiveness in the "property of the horizon." The feet of citizens may carry them a straight distance of not more than 500 yards until they have reached the extreme border prescribed by legal document as municipal possession, but from thence the eye may continue the

journey and wander unlimited into regions marvelously varied and extensive. An indistinct peak at the eastern horizon, becoming conspicuous only at certain periods of the year when covered with snow, is pointed out as representing a distance of fifty miles from the bay shore at the foot of Lincoln Park. No trespass sign warning spectators against intrusion into this magnificent realm has yet been placed. All this vast region is assumed as rightfully belonging to the people of Alameda to be appropriated by them in the manner in which all park space was meant to be appropriated. Can only so much of what is termed "park" benefit the individual as permits of the continuous and unhindered use of his natural means of locomotion? If so then the street can adequately fulfill the purpose and the park is unnecessary. "No better use can be made of mountain slopes and rushing rivers than their utilization in the development of citizens," writes Otis Smith in defence of the large natural parks. Does this mean that it is necessary to climb the mountain slope and to tramp through this region in order to receive the benefit? Placed at a proper point of vantage is not the service of the eye the principal means of benefit and of inspiration?

But if some one should assert that after all we must be able to wander in space in order to be profited by the surroundings—if some one should point out the advantage over Alameda's restricted park areas to a private citizen of a large city in having at his disposal a large park commensurate with the size of that city, we reply that our freedom of locomotion is not limited by the prescribed terri-



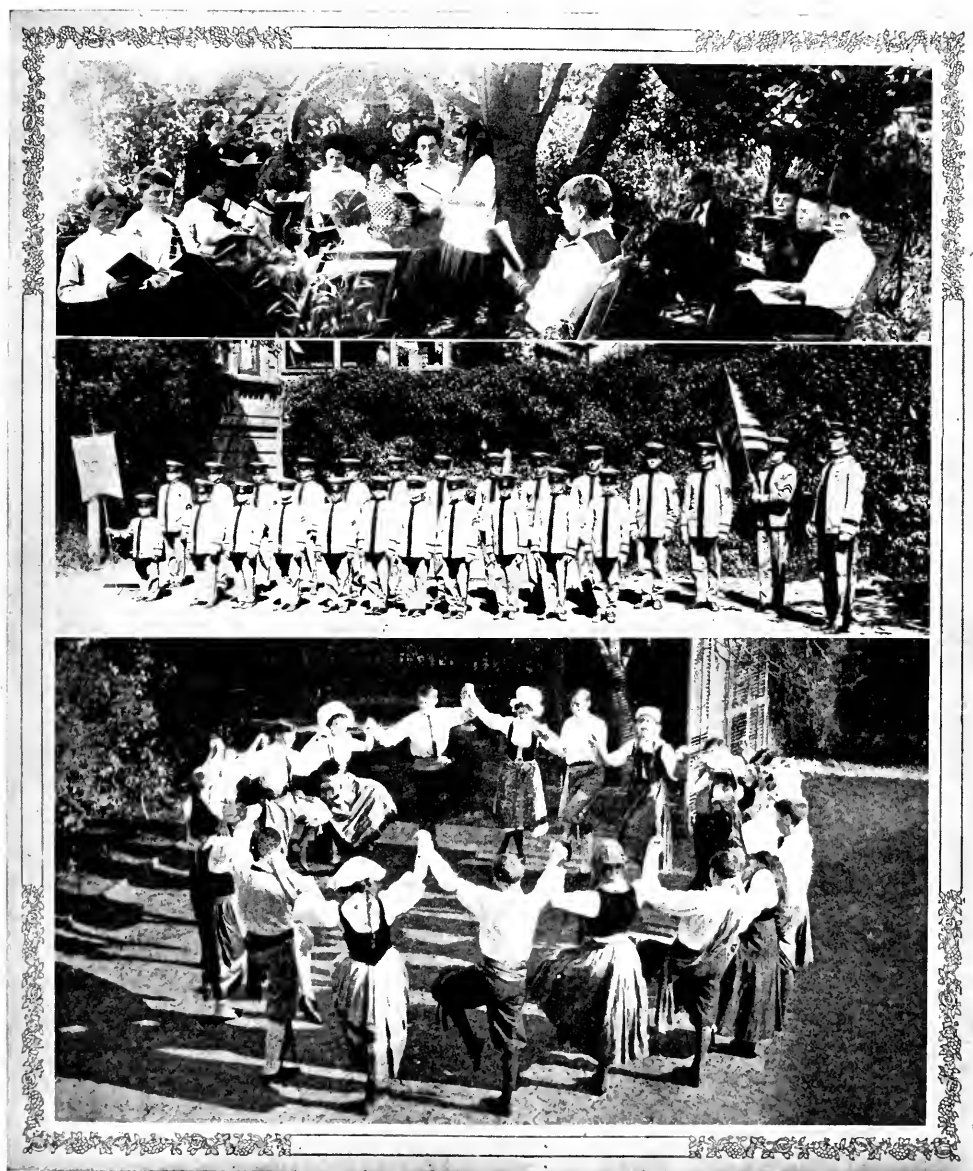
torial confines. With the second generation of native Alamedans already beginning to sprout fins and developing web feet* in adjustment to the natural environment these parks admit our citizens into a realm of unlimited freedom of self-propulsion.

United with Lincoln Park at its eastern border lies a placid, peaceful body of salt water known as San Leandro Bay. The shallowness does not permit of its designation by the federal government as navigable water, but for the higher use in the development of body and soul of Alameda's people it is remarkably well adapted. A number of rowing crews of boys and girls have already availed themselves of the opportunity and pleasure crafts of all descriptions are constantly seen passing back and forth on its surface. The full recreational possibilities of this aquatic portion of Lincoln Park have however not yet begun to be realized. What contribution to the health and vigor of Alameda's future citizens this expanse of sea offers, what source of civic righteousness is contained in this picturesque scene who can estimate? If we recognize a distinctive ethical value in man's contact with natural objects on land still more must we admit such influence in man's association with nature at sea. Did not that great central figure in history, whose moral teaching is recognized as the foundation upon which rests the highest civilization, did not he prefer in spite of

all the picturesque mountain regions of his native land to take up his permanent abode at Capernaum by the sea of Galilee? Did he not sleep on the sea when in its most turbulent state and walk on the sea and speak to the multitude from a boat on the sea? And were not the majority of the great men of substantial character chosen by him to be the pillars and transmitters of his teachings such whose vocation had placed them in constant contact with the sea? The origin of all physical life has been ascribed to the sea how much of the soul of man may we also attribute to this service?

The remaining two Alameda parks seem at first glance to be less favored than the two already described. At closer consideration, however, we realize that they are remarkably well fitted to serve a distinctive purpose. A map of this city will show McKinley Park to be located midway between Lincoln and Washington Parks, to the north of the island and about one block from the deep navigable water of the estuary. A marine view is not embraced within its scope. Yet it is not lacking in scenic features. Looking to the northeast we find included in our environment a view of the charming coast range generally designated here as the Berkeley foothills. At different angles of illumination during different periods of the day, also at different seasons of the year and under different conditions of atmosphere this range assumes various aspects of color and of form. At dawn it first appears before us in a lavender veil and toward evening it retires from our vision in its brightest garb with the golden glare from the windows of cottages on its slope like so many brilliant jewels on its bosom.

*A resident of Alameda was the first individual to swim across San Francisco Bay, and a native Alameda girl holds the Pacific Coast woman's swimming championship both in speed and endurance. And, further, the Alameda Boat Club has held the Pacific Coast rowing championship for the last 14 years.



THE PARKS AND PLAYGROUNDS OF ALAMEDA

In summer and in winter it is clothed in the style appropriate to the season.

This park (McKinley) is smaller in proportion than its other two sister parks, but it is none the less important. It presents an arboretum of exceptional variety and beauty. A luxuriant border of palms already indicates at some distance from the street what can here be expected. Judge Waymeier, who was the former owner of this park, has left various benefits to posterity, but the greatest treasure left by him to Alamedans has been his thought and effort in the selection and arrangement of this aggregation of rare and beautiful specimens of trees. Indications are that the vicinity of this park will be the chief factory district of the city. The industrial workers wearied by the strain of fixed attention upon shifting mechanical objects can here rest their eyes and find suitable recreation under the soothing influence of this assemblage of trees.

Jackson Park, the last but not least of the spaces in the Alameda park system, is situated to the south of McKinley Park. We thus have one park toward each point of the compass. The great advantage of this park is that it is located near the heart of the principal business section, thereby forcing itself upon the attention of those who need it most. And in order that as little of it as possible may escape notice it is layed out long and narrow in the form of what is termed a boulevard park. Vehicles are compelled to pass it on both sides, through the middle and at the ends, making a stretch of 2460 feet, or about half a mile. We see that in every way this space has been calculated to inflict a dose of parks, on the hurried passerby of this section in order to make the

regular heavy diet of business routine more tolerable.

On account of its age and location this is the best known of Alameda's parks. For many years it was simply known as "the park," and furthermore significant of its importance is the fact that two streets in its vicinity are named after it—Park Avenue and Park street. The latter being the principal business thoroughfare of the city.

All of these four spaces described, comprising 22 acres, represent not only so much area secured by the city and accepted by it to serve the people with their natural scenic charms. Given many talents the citizens have applied themselves to acquire more talents. They have taken these grounds with all that nature has thrown in unsolicited and are making every effort to improve upon what was freely given. As much as the hand of man can do to lend a charm to nature is being accomplished to make these areas still more effective for their purpose. The most ornamental of shrubs, trees, lawns, and flowers are installed and kept in the most attractive form known in the modern art of landscape gardening. And it is imperative that in such a city as Alameda attention be devoted to its park areas, for in a city in which the people nearly all own their own homes, having the pride in appearance which such proprietary interest brings with it, the inhabitants being mostly of the prosperous middle class with the asthetic demands characteristic especially of this class; in short, in a city in which most every one devotes attention to a diminutive park about their own home it is emphatically required that the condition of the municipal parks be maintained at the highest standard. On the other

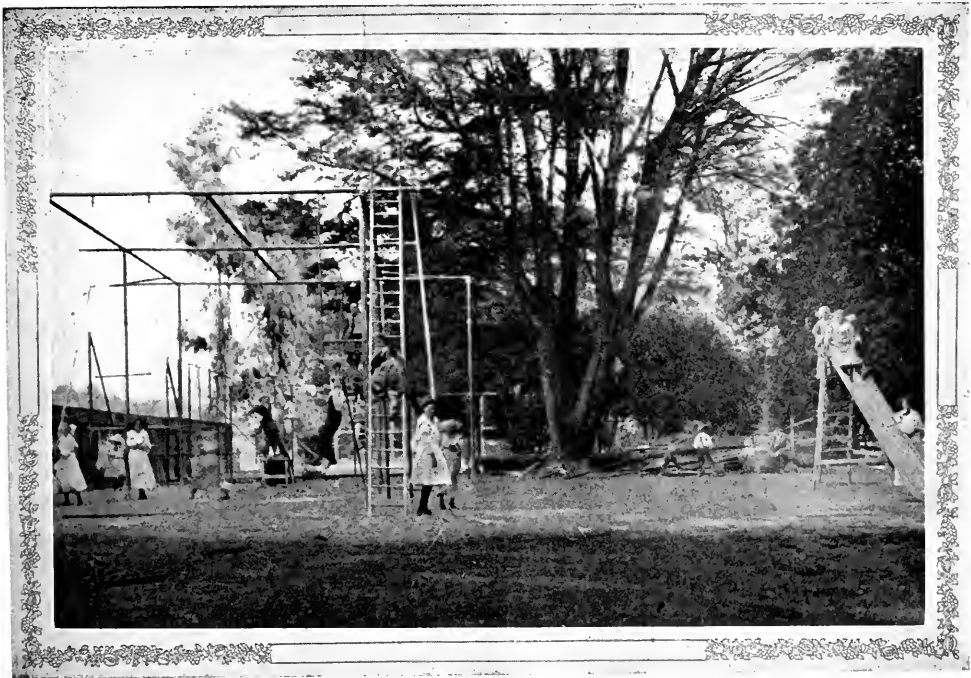
hand these well kept beauty spots of the city also react upon the home gardens. It is interesting to notice how many persons make inquiry about proper treatment of plants, how they keep a constant lookout for the latest development in plant beauty and how they imitate in their own gardens the color combinations and effective arrangements aimed at by the expert in charge of the municipal grounds.

The most remarkable and astonish-

never purchased by the city at all.* (See footnote). And even in connection with this last one a playground consciousness is developing among the youths in the vicinity.*

The boys are beginning to claim it as theirs and are at present upholding its honor in the form of a number of baseball teams bearing the name of Jackson Park.

The fact is that Alameda did not need parks. The artificial surround-



ing thing, however, in connection with Alameda's parks is that in spite of all this excellent park equipment and park maintenance, Alameda after all has no parks in the usual sense of the term. The three larger ones which the city secured by bond issue were in reality acquired through an original desire for playgrounds, and the smallest one—Jackson Park—which is the only one that seems purely park and without playground equipment, was

ings under which people live day and night in most cities and which impels

*Jackson Park was part of a tract, which not dividing advantageously for building purpose, was conveyed by the owners to the buyers of adjoining lots as a private park. It became a dumping ground and an eyesore until, through the instrumentality of ex-Mayor E. K. Taylor (in the year 1890) the title to it was turned over to the city to be converted into a public park. \$5000 was then voted for improvements, which were undertaken at once.

a city to acquire parks for the purpose of supplying that human need of contact with nature does not exist in Alameda. When a man of wealth gains more wealth it is not because he needs it, but due to the law that "to him that hath shall be given that he may have more abundantly." Likewise when Alameda gained possession of parks it was not because she needed them, but because her abundance begot an increase. It would be impossible to imagine another instance of such an aggregation of human habitations that does not efface the aspect of nature. In fact, instead of depos-

As already mentioned Alameda's parks are in reality meant for playgrounds. In describing the parks we have therefore also described the places which the city has secured for its people and its children to play. It was but natural that a city having such regard for ornamental plant life should insist on such surroundings of the play spaces.

Though the parks and playgrounds are one and inseparable they are under different management. The park features are under the care of the superintendent of parks and the playground features under the superinten-



If there is one thing more than another that marks Alameda as a model home city it is the playgrounds provided for the children in the Public Parks.

ing nature the development of this city is improving on nature. As has frequently been remarked, "all of Alameda is a park." A drive on many of her streets actually gives the impression of a highway through a public park.

To do full justice to a city's parking efforts the physical characteristics, besides the natural scenic features and the attention to street trees should be considered—the latter being directly related to the park system by being placed in charge of the superintendent of parks. Demand for brevity, however, bids omissions along this line.

dent of playgrounds. These officials are responsible to a council committee.

To discuss the play equipment and various play activities in particular, would require a separate article. Like with the park features on these areas the amount and nature of play in the public playgrounds is closely interrelated with various characteristics of the city. The inducement for aquatic sports, the miles of beach accessible to all the children, the amount of play in the school playgrounds, the spacious back yards and opportunity for

street play must all be taken into account.

Unlike with the parks, we can, however, not say that the playgrounds were not imperative. With the remarkable opportunity for the un hindered expression of the child's play impulse offered in a city such as Alameda it would seem that the expenditure for public playgrounds was ~~ka~~ needless luxury. A close study will show that, on the contrary, in no city could this need be more insistent. In a congested foreign section of larger cities the mere opportunity for play is sufficient. The impulse for physical development in the form of child's play in such communities is almost irrepressible and occasionally finds an outlet in criminal activities. In a city of refinement, however, where the fathers are mostly engaged in sedentary vocations and the mothers lead a life of comparative luxury the offspring do not possess the impulse to play which conditions proper organic and muscular development. Looking

from a school window at recess the principal recently remarked to the writer: "Why is it that when we were boys you couldn't keep us from playing, whereas that line of boys roosting out there on the fence couldn't be forced to play. I don't see what makes these fellows so lazy?" In one school yard the writer seeing two boys bending over Popular Mechanics magazine, asked why they didn't play at recess. "Oh, we don't care to play, we like to read about automobiles," was the reply. A number of parents have come to the playgrounds and have asked to place their children in teams for the sake of the physical benefit to the child. Without the desire to play asserting itself spontaneously, it was however impossible to retain them by the present method. Many other instances could be mentioned to prove that public playgrounds have an important mission in Alameda and that under conditions as obtain here every possible stimulant to child's play should be employed.



THE PUBLIC PLAYGROUNDS OF LOS ANGELES

By Bessie D. Stoddart, President Los Angeles Playground Commission

A municipal Playground Commission was created in Los Angeles in September, 1904. In 1897, and later, the College Settlement had been at work trying to create interest in the city's establishing public playgrounds, but the time was not yet ripe. In 1903 the Settlement suggested to the Civic Federation, now Civic Association (a clearing house for women's

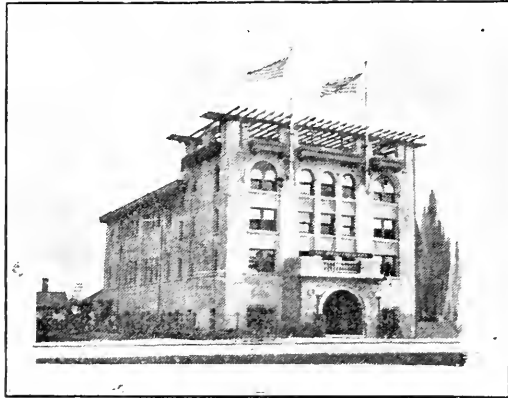
work), that the writer, as a representative of the Settlement and its interest in the Playground cause, should go into that body for the purpose of promoting public playgrounds. As the Outdoor Art Section of the Federation was already interested in this line, its chairman, Mrs. Willoughby Rodman, and the writer were appointed a Committee on Playgrounds. This

committee launched a new and strenuous campaign for public playgrounds and succeeded in interesting the City Council. One Councilman in particular, whose ward had no park, took the project up, with the result that the Council bought a two-acre tract in his neglected ward for the city's first playground. It was then discovered that neither Park Department nor School Department seemed anxious to adopt the playground idea, as had been expected, so it was determined to create a special Playground Commission, to take charge of public playgrounds. This was done by ordinance.

Soon after organizing, the original Playground Commission was so fortunate as to secure the services of Charles B. Raitt as Superintendent. Under his skillful management the work, beginning with one small playground, has developed into a large recreational scheme.

Since the acquisition of the first ground, which was formally opened in June, 1905, four large playgrounds have been opened, the largest one covering eleven acres. A "recreation center" also has been built.

The playgrounds are open every day in the year. They are equipped with



RECREATION CENTER

In 1911, when charter amendments were added, the Playground Commission was incorporated in the city charter. Provision is made for the appointment by the Mayor and Council of five Commissioners, of whom not more than three shall be of one sex. They shall serve without compensation for four years, their terms expiring in rotation. The present Commission consists of J. D. Radford, Richmond Plant, Dr. J. E. Cowles, Mrs. Willoughby Rodman (abroad for a year), and Bessie D. Stoddart, President.

swings, see-saws, maypoles, slides, open-air gymnasiums, etc., with fields for ball games of all kinds, with tennis and croquet courts, with sand-boxes and building blocks, and with various other devices, meeting the recreational needs of all, from the year-old babies in the baby-swings to the men and women at grown-up sports; for even the mothers are organized into classes and teams, and seem to benefit by active sports as much as the boys and girls. Hot and cold showers are an important part of the equipment of each ground. Upon several of the

grounds there are cement wading-pools of ample size and artistic design. These, surrounded by sand-courts where the little children play, and by pergolas under which the mothers may sit, form one of the greatest attractions. Children's gardens form another interesting feature at some of the centers. Trees, vines and shrubbery beautify all of the playgrounds.

Almost equally important with the facilities provided for outdoor play are the clubhouses, which form a part of the general equipment, and which answer the needs for indoor recreation. They are open afternoons and evenings, and give opportunity for the formation of such organizations as dramatic clubs, folk-dancing classes, bands, orchestras, classes in manual work and social clubs. Dances and neighborhood gatherings of all kinds may also be enjoyed. Connected with one of the centers is an organization of some seventy women who give valuable aid in promoting the social work of the playground. They also, as one neighbor to another, help those families that may be in need. In the same center there has recently been formed a young men's City Club of eighty-five members. There are evenings devoted to athletics, games and business, but the main meeting is the monthly supper, when some speaker addresses the members upon a topic of civic interest. On Saturday nights, during the winter months, a public lecture and entertainment course is maintained at all of the centers. Some of the best talent of the city gives its services for this course. On the last Saturday night of each month the local playground clubs provide the program.

The interest of the Public Library

was early secured, and branches are now located at most of the centers. Very valuable results are achieved by the librarians, who are particularly fitted for this line of work.

At one of the playgrounds, and at the Recreation Center are maintained headquarters for the district visiting nurses. These work under the management of the College Settlement, but their salaries are met by the city.

The "Recreation Center" is distinguished from the other centers in that it provides more extensively for indoor recreation. Here the building is



A LITTLE GARDENER

of greater importance, although a small playground is operated in connection with it. The place is located in an industrial region.

The main feature of the building is its commodious, finely equipped gymnasium, which measures 44 by 80 feet and is two stories in height. A combined gallery and running track is located at the second story. The gymnasium has light upon three sides. Upon the fourth side is a stage for occasions when the gymnasium is used as an auditorium. This stage can be

completely shut off by means of rolling doors, and then becomes a reading or clubroom. The basement floor of the building contains the following: A pleasant lobby, used also in the evening as a game room; two of the best modern bowling alleys, a shower room with ten handsome marble shower baths; a locker room with two hundred and eighty steel lockers; a clubroom; a furnace room fitted with gas heaters for baths, and, occupying one corner, with separate outside entrance, a model dispensary room, the headquarters of the district visiting nurse.

Going back to the combined stage and clubroom, we find upon one side a room fitted up for the public library station, and upon the other a kitchen for use when refreshments are served at entertainments. In a mezzanine floor we find a small clubroom, also the office of the physical instructor.

Above this part of the building we find a pretty, modern, five-room apartment, which is the home of the manager of the center and his family. Still above the department is a roof garden, commanding a beautiful panoramic view of the city, and of the Sierra Madre Mountains in the distance.

The Recreation Center and, in fact, all of the playgrounds are practically, in many respects, municipal settlements. One point in common is the residence feature, which is considered of the utmost importance in the recreation system. The men Directors live at their grounds. Pretty bungalows are provided at two grounds, and in time will be extended to all. On other grounds, rooms are provided in the clubhouses. The man and his family thus create a home atmosphere, and this rounds out

the center's influence in the neighborhood.

Far more to be considered than the **equipment** of play centers are the **people** who have them in charge. The value of the work probably rests 90 per cent in the efficiency of the leadership, just as with schools, hospitals or other institutions. This principle has ever been kept in mind, and the standard for the playground staff has been a high one. It has been the aim to secure men and women who are trained in athletic and social work and who are capable of moral leadership. The salaries are not yet in accord with what is demanded, and many fine workers are called away, principally into the schools; but in time the city will doubtless be able to compensate the social worker for the high class of service rendered.

Besides the General Superintendent, C. B. Raitt, the chief officers of the staff are: Charles S. Lamb, Secretary; Charles Miller, Supervisor of Boys' Work, and Mrs. Maud W. Hammond, Supervisor of Girls' Work. The two last named, as the titles imply, visit all the playgrounds and aid and co-ordinate the work of the Directors. At each center there is a man director in charge of the activities of the boys and men, and a woman director in charge of the activities of the little children, girls and women. There are substitute directors who relieve the regulars on certain days. An accompanist goes from center to center, as also does a gardener. A head-mechanic and an assistant attend to repairs of all kinds, and also do much construction work on the various playgrounds, thereby saving a very considerable sum to the department.

Besides the paid directors there are

a number of volunteer workers, young men and young women who devote some time to leadership in clubs, classes and other lines of work. The State Normal School and the Cumnock School of Oratory have furnished many volunteer helpers, and these receive credit at their schools for hours spent in practical work in the playgrounds.

Once a month, all the workers, the Commissioners and often other city officials meet at one of the centers for a social supper and to discuss matters pertaining to the recreation problems.

May Queen and other old-time festivities are enjoyed. An inter-playground field meet is also an annual affair at the close of summer.

The various holidays are celebrated in appropriate manner on all of the grounds: Arbor Day with tree planting, the Fourth of July with patriotic exercises and games, and Christmas with Christmas tree parties and children's plays.

Besides the all-year-round playgrounds the Playground Department operates nine vacation playgrounds, which it has placed in school yards.



BUILDING BLOCKS

In November of last year a four days' conference of playground workers was held in Los Angeles, under the auspices of the Playground and Recreation Association of America. Delegates came from many parts of the State and the interest was very keen. It was felt that the results of the meeting would be far-reaching. The program closed with a big play festival held at one of the playgrounds.

A great play festival is a yearly event. It is usually held in honor of May Day, and folk-dancing, the crowning of the

Simple apparatus has been erected and a man and a woman director on each ground lead the children in the usual sports and games. Considerable sewing, weaving and other handwork is done during the hotter part of the day. Story-telling is also enjoyed. Showers have been provided in some of the schools, and these are operated. During the school term the playground apparatus is allowed to remain, and the school department provides a teacher to take charge at each ground.

It is difficult to secure people al-

ready trained in playground work, as the movement is new, and there are few schools offering advantages in this line. On this account, for several months previous to the opening of the vacation grounds, the department carries on a free course in playground work for those wishing to do summer work, and, after due examination, those standing highest are chosen. This year over one hundred have entered the course. Directors for the permanent playgrounds are certified by the Civil Service Department.

Last summer a new undertaking was developed in the playground system. A seaside camp was set up, and for six weeks this was occupied by boys and for two weeks by girls. Not over fifty were taken at a time, each group staying two weeks. Each boy or girl paid \$5.50 for transportation and two weeks' board. The Department furnished the people in charge, and for extra expenses and "scholarships" for those unable to pay, private subscriptions were secured. This summer the playground camp will probably be located in the mountains. It is felt that the summer camp, with all that it means to boys and girls who are "city bound," will become a very important factor in the recreational system. There is no reason why the camp idea, in time, cannot be extended to include families, and bring to tired mothers and fathers, and to the little children as well, the needed change and contact with nature.

The funds for the playground system are each year set aside from the tax levy by the City Council. For the present fiscal year \$51,450 was allowed to meet salaries, expenses and outlays. It has been necessary in past years to purchase land for only two of the six

playgrounds (approximately \$20,000 for two). The other four valuable sites belonged to the city already and were given over to the use of the Playground Department, one by the Park Department, one by the Water Department and two by the City Council.

The playgrounds have received many gifts from friends to the movement. Two firms gave \$500 each towards a playground site; another firm gave instruments for a brass band and for a drum and bugle corps; other friends gave instruments for a second brass band; also a library of over five hundred volumes. Gifts of clubhouse furnishings and of trophies for meets, also favors from other city departments are among the many things for which the department has to thank its friends. In this list must be included those who give so generously of their time as volunteer workers and who aid in lecture courses, entertainments and in many other ways.

The Playground Department is about to undertake its largest task. This is the equipment of a magnificent athletic field and playground at Exposition Park, property under the jurisdiction of the Sixth District Agricultural Association. To the Playground Department has been assigned forty-three acres lying within the race track; also some ten acres lying outside the track. The tract of forty-three acres will be converted into a great play field planted to green turf. It will be large enough to accommodate a number of baseball diamonds, as well as space for cricket, football, hockey, lacrosse, basketball, tennis, bowling on the green and other sports. Field events and military drill will also be provided for. Great meets and outdoor

festivals where thousands congregate will also take place here. A tunnel-way under the race track will connect the large field with the ten-acre area, where will be placed the shower and locker buildings. Here also will be located a complete playground for children. In time it is hoped that an outdoor plunge and gymnasium and assembly buildings may be added, making the whole scheme a complete recreation plant, like those to be found in Chicago.

The county government is sharing with the city the cost of equipment, as it is planned that the various communities of the county shall have the use of these ample athletic headquarters.

Los Angeles should not remain con-

tented with what has been provided in the way of public recreation, and indeed she is not. The city now numbers in the neighborhood of 400,000 and extends over 121.75 square miles. From all sections come pleas for playgrounds. The Playground Department is about to prepare a map showing the present provisions for recreation and planning a future scheme of development. It is hoped that, as time goes on and the city's responsibilities to aqueduct and harbor are relieved, Los Angeles may be in so prosperous a condition as to be able to afford, within walking distance of every child, a play center equipped, not only for the use of the child but for all the members of his family as well.

THE RELATION OF MILK TO HEALTH

Written Expressly for Pacific Municipalities by Chester L. Roadhouse, D. V. M.,
of the University of California

The preservation of health in our great centers of population has become one of the great problems of medical science. In most respects Boards of Health have met the situation in a very successful way by employing officials specially scientifically trained to carry out the work that is constantly needing their attention.

Of the various Public Health problems, the city milk supply is now, perhaps, the most important because it receives, relatively less attention than do other public health matters, and the attention it does receive is frequently from officials not thorough-

ly trained for the work. Milk is an uncooked food, and once it is contaminated the injurious elements are consumed in their raw state which increases the danger from them. It is the most easily contaminated food, on account of the unsanitary environment in which it is usually produced, and it is the most easily neglected by health departments, originating as it does for our large cities, from so many different sources, making a close supervision of its handling difficult. It passes through many different hands, containers and places of easy infection in its journey from the cow to the con-

sumer, and it starts its journey in many cases under the management of the "greenhorn milker", the most careless and most ignorant laborer with which we have to deal. In California he is generally a foreigner, unskilled and untrained in the care and handling of milk, and lacking in the proper understanding of common decency about his personal habits. Even our American milkers have become dulled in their proper sensibilities toward milk to such an extent that cow manure is allowed to get into the milk-pail in surprising quantities, and has become one of the common adulterants of the cities' common milk supply. Flies that are so numerous around dairies, and many times so dangerous, are allowed to get into the milk, and in most cases absolutely no attempt is made to keep them out where there is no efficient supervision of dairies.

These, with the dust from the hay, constitute the common sources of that dangerous group of organisms known as "putrificative bacteria", not dangerous under ordinary conditions, but dangerous when they enter into the composition of milk, and there increase in numbers with enormous rapidity until there may be a million or more of them in every cubic centimeter of milk by the time it reaches the consumer. Milk kept at low temperatures for a considerable length of time also encourages the multiplication of the putrificative bacteria, as at low temperatures the lactic acid producing organisms do not thrive, and in the absence of the lactic acid, the product of their growth, the putrificative bacteria and increase in numbers more rapidly. Such milk does not sour while it is kept cold, but may become injurious to health without the knowledge of the

consumer, as the lactic acid, nature's indicator of unwholesomeness, is absent.

These putrificative bacteria cause much of the digestive trouble in infants. The number of cases is greatly increased during hot weather when the milk is not kept at a low temperature. The danger is still greater in large cities where the milk is not consumed until 36 to 48 hours after it is produced, as the bacteria are then allowed more time and they increase to greater numbers.

B. coli is one of the putrificative organisms suspected of being responsible for summer diarrhea in infants during the first year of their life, and as the organism is found most prevalent in animal excreta, too much attention cannot be given to keeping it out of the milk.

A report from New Orleans in 1909, showed an increase from the usual infant mortality of about 25 per month, due to gastro-intestinal diseases, to something like 125 per month, due to the same cause for the first warm months of summer. Other cities show similar records and in 86.6 per cent of these cases, according to statistics, where the child was fed on artificial food, such losses of life resulted when the milk consumed had been produced in a dirty way, had been kept in a dirty environment or otherwise badly handled. It is believed that the consumption of large numbers of putrificative bacteria causes gastro-intestinal diseases, and although pasteurized and sterilized milk have also brought on a certain number of these cases, no doubt we are justified in the belief that the injurious material was probably given off to the milk as a result of the multiplication and growth of bacteria

in the milk before it was pasteurized or sterilized as the case may be. We are even more impressed with this supposition when we consider the fact that milk is not pasteurized commercially until it reaches the city distributor, which is frequently 24 to 36 hours after it is produced. It is seldom kept cold in the meantime, and this, of course, encourages bacterial development and the giving off of the injurious products to the milk.

There are numerous other conditions that we find in the city milk supply that are less common, but more injurious to milk consumers as a whole. I refer to infectious diseases of man which spread from one individual to another, or to many others through the medium of milk as a carrier. Milk contains all the necessary properties for the life and growth of bacteria so that when an individual affected with tuberculosis, typhoid fever, scarlet fever or diphtheria comes in close contact with a portion of the cities' milk supply, either as an employee (driver, milker or bottler) he threatens to cause a serious outbreak of disease among the consumers of milk from that dairy. The number of outbreaks of these diseases quite definitely traced to dairies is large. Trask, in Bulletin No. 56, U. S. Public Health and Marine Hospital Service, 1909, tabulated 179 outbreaks of typhoid fever, 51 of scarlet fever, 23 of diphtheria, and 7 of sore-throat. Besides these, Hart reported 51 of typhoid fever, and Bussey and Kober 86 of typhoid fever and 79 of scarlet fever, 21 of diphtheria, making in all 316 outbreaks of typhoid fever, 125 of scarlet fever, 51 of diphtheria, and 7 of sore throat. These results, of course, cover the reports of a good many years, and to determine

with any degree of accuracy just how large a part milk plays in the spread of these diseases is difficult. Enough is known, however, to warrant the strictest quarantine of milk supplies where more than 3 to 5 cases of typhoid occur on a single milk route, and the greatest care should be taken to quarantine all milk bottles in homes where any of these infectious diseases exist, in order that the empty containers will not be returned to the milk dealers and refilled for other customers without proper sterilization. As the literature on these diseases and their relation to the milk supply is quite common, it would seem unnecessary to discuss them in further detail.

Of greater interest, perhaps, are the diseases of animals, which are communicable to man through milk, and under this heading we find bovine tuberculosis, Malta fever, anthrax, foot-and-mouth diseases, and possibly cowpox. In this country bovine tuberculosis is by far the most important, because we find it so prevalent among the dairy animals. A. D. Melvin, Chief of the Bureau of Animal Industry, U. S. Department of Agriculture, expresses himself as being of the opinion that 10 per cent of the dairy cattle in the United States are affected with tuberculosis. He bases his opinion on the results of tuberculosis tests made in various parts of the country under the direction of the Federal Department. The reports of tests made in California, by the State Veterinarian, the State Agricultural Experiment Station and Federal employees, up to April, 1911, show 19 per cent of the animals tested, to be affected with the disease.

Tubercle bacilli are frequently found in cows' milk. It was at one

time believed that tubercle bacilli did not occur in cows' milk unless the udder was diseased. Schroeder and Cotton showed that frequently the feces of cattle showed large numbers of tubercle bacilli, although the animals showed no visible symptoms of the disease. They furthermore showed that the pollution of milk with infected feces was the most common source of tubercle bacilli found in milk. As we find from 3 to 50 per cent of cattle in different parts of the world, affected with tuberculosis, it is not surprising that market milk in

samples of market milk in Washington, D. C., to contain virulent tubercle bacilli. Hess found virulent tubercular bacilli in 16 per cent of 107 samples of New York market milk. Such milk has been found to be readily infective to guinea pigs, rabbits, calves, swine, etc., even to the point of causing generalized disease. It is probable that the ingestion of such milk by human beings will produce similar results.

Various attempts have been made to estimate the amount of danger to human beings from consuming milk



"THE MILKERS", ARDEN DAIRY, Certified.

many places is frequently found to contain tubercle bacilli in sufficient numbers to cause the death of test animals.

Anderson, in Bulletin 41, U. S. Public Health and Marine Hospital Service, reports the percentage of infected milk, in the various cities as follows: Copenhagen, 14.3 per cent; Boston 21 per cent; Liverpool 5.2 per cent from city dairies; and 13.4 per cent from country dairies; Genoa 9 per cent; London 22 per cent, and Berlin 28 per cent. Anderson found 6.72 per cent of

infected with bovine tuberculosis, with considerable variation in opinion. The percentage of the disease in the adult is now thought to be small, however, it is difficult to prove the assertion. Although the bovine type of organism is not commonly found in the adult, it would seem that due consideration should be given to the possibility that the bovine type or organism might change its form to assimilate the human type, due to its change of environment in passing from the bovine to man.

The amount of tuberculosis in infants and children, due to bovine origin, is much larger. Referring to the journal of the American Medical Association, February 17, 1912, we find the following: "According to the investigations and statistical studies of Park and Krumwiede, in young children from 6 to 10 per cent of all deaths due to tuberculosis are caused by the bovine type of tubercle bacilli. The cases of tuberculous adenitis and abdominal tuberculosis of children, being indeed, more often caused by the bovine than by the human type. Even in adults a significant proportion of tuberculosis infection elsewhere than in the lungs is found associated with bovine tubercle bacilli, namely cervical adenitis, 36 per cent; abdominal tuberculosis 22 per cent; bone and joint tuberculosis 3.5 per cent. Surely a source of infection which causes up to one-tenth of the fatal cases of tuberculosis in children, and which, in the words of Park and Krumwiede, causes a marked per centage of the cases of cervical adenitis, leading to operation, temporary disablement, discomfort and disfigurement, a large per centage of the rarer types of alimentary tuberculosis requiring operative interference, or causing the death of the child directly or as a contributing cause in other diseases, can not be looked upon as negligible.

As Malta fever in goats, and foot-and-mouth diseases in cattle are not found present in America; anthrax in cattle is the only other disease of importance concerned in the city milk supply with which we have to deal. Even anthrax is not of very great importance, as it is not so prevalent as tuberculosis, and even in the infected animal the bacterium of the disease is

not given off in the milk until the last stages of the disease, by which time the milk flow is almost entirely checked. On account of the susceptibility of man to the disease, however, the milk from a dairy in which anthrax exists should not be used for human consumption. Milk from animals suffering from rabies, gastro-enteritis or any septic or febrile condition is also unwholesome and should not be used.

Protection Against Bad Milk

In view of the elaborate manner in which the necessity for a pure milk supply has been pointed out, and of the many obstacles in the way of obtaining such a supply, except through vigorous official supervision, it is believed by Melvin that if the milk supply is divided into three classes, as hereinafter described, and an efficient supervision provided, the consumer will be amply protected in securing clean and uncontaminated milk.

Certified Milk.—To be raw, whole milk produced under the supervision of the Milk Commission of a County Medical Society. In explanation of this it can be said that the Commission itself is kept up to standard by the supervision of the American Association of Medical Milk Commissions, and on this account "Certified Milk" stands for the same thing irrespective of the place it is produced in the United States. It can be said without any question that "Certified Milk" is the best that it is possible to produce in the way of a clean, wholesome and healthful milk. The printed rules and regulations of the Milk Commission, which the dairy producing Certified Milk is obliged to follow, are rigidly enforced by frequent chemical and bacteriological examinations of the

milk, frequent inspections at the dairy, monthly examination of all cows, and the testing of all cows for tuberculosis twice each year, and, in fact the technique, of producing a milk that is scrupulously clean and pure in every respect, is as near perfect as it can be made.

Inspected Milk.—To be clean raw milk from healthy cows, as determined by the tuberculin test and veterinary physical examination; the cows to be housed, fed, and milked under good conditions, but not necessarily equal to the conditions provided for "Certified Milk"; pure water, as determined by chemical and bacteriological examination, to be provided; the bacteriological count of the milk not to exceed 100,000 bacteria per cubic centimeter at any time before delivery, as determined by the health department at frequent intervals; milk to be delivered to the customer in sterilized containers, and the temperature of the milk not to exceed 50 degrees F. until delivered.

Pasteurized Milk.—To be from all dairies not able to comply with the requirements for Certified or Inspected Milk; this milk to be clarified and pasteurized at central pasteurizing plants, which shall be under the personal supervision of an officer of the health department. Pasteurized milk should not be permitted to exceed 60 degrees F. upon delivery from the dairy to the pasteurizing plants. The milk from these pasteurizing plants placed in sterilized containers, should be delivered to the customer at a temperature not exceeding 50 degrees F. It should also be provided that no cows suffering from any communicable disease, or any unfit condition, to be determined upon physical examination by

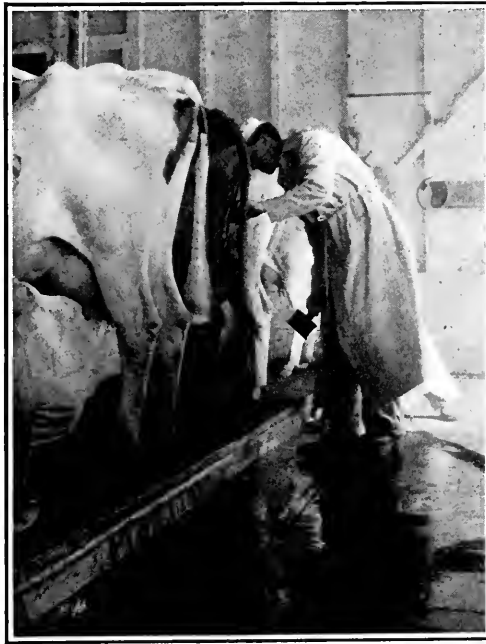
an authorized veterinarian, shall be permitted in any dairies; and, further, that cows which do not show any physical signs of tuberculosis upon veterinary examination, but which may have reached to the tuberculin test, may be included in dairies supplying milk of this class. All milk to be of good composition, free from adulterates and artificial coloring matter.

Pasteurization of milk has been defined as the heating of milk to a temperature sufficient to kill all pathogenic bacteria which might gain entrance to it. There is much in favor of compulsory pasteurization at the present time, unless milk is produced under the higher standards mentioned above. If properly done, the milk is safe as a food and for common use it is certainly to be preferred to much of the milk now sold in our city markets. The objection to the average pasteurization by milk dealers at the present time is either that the milk is not heated high enough, or that the temperature is not continued long enough to destroy all injurious bacteria. When heating milk to 160 degrees F., the temperature recommended for pasturization by the flash method, we find that the cream line is considerably interfered with. The milk dealer naturally finds this an objection and consequently the milk is seldom heated to 160 degrees F. and for that reason is unsafe from a public health standpoint. It kills the lactic acid producing bacteria which are easily destroyed, and the milk does not sour as quickly as would the whole milk. This is the reason commercial pasteurization is carried on at the present time in California. It is a remedy for dirty methods in the

production and handling of milk and does not ensure the safety of the product. The reliable and safe method of pasteurization, and the most practical of the safe methods is pasteurization by the holding process; and this is the method required in New York City. The milk heated to 145 degrees F. and held at that temperature for 20 to 30 minutes. At this temperature the cream line is not interfered with, the

city employee and kept on file in the Health Office. With the use of this apparatus the Central Pasteurizing Plant recommended by Melvin, would seem unnecessary, as the automatic record would take the place of close, official supervision.

Pasteurization increases the cost of milk, but is the cheapest safeguard, and for the general milk supply for the large city, is the only immediate



"WASHING THE COWS", ARDEN DAIRY

scorched flavor is not present, the milk cells are less broken down, and the method has been shown to be destructive to pathogenic bacteria.

The Board of Health of the City of Berkeley has adopted the use of an automatic recording thermometer which shows a diagram of the temperatures to which the milk has been heated. The chart covers a period of one week and is then replaced by a

relief.

Chapin believes that there should be more exact knowledge of the relations of milk to disease on the part of health officers and physicians, from which ought to follow a gradual education of the public, and then there would develop a specialization in the milk business to meet the necessarily different needs of the different people.



EDITORIAL



PROGRAM FOR THE NEXT CONVENTION

In view of the fact that there will undoubtedly be a very large attendance at the next meeting of the League, it is desirable that the program be carefully prepared and those matters be selected for discussion which are timely and of the most importance. As an evidence of the relative importance of the various municipal problems of an engineering nature, it is interesting to note the information recently obtained by one of our well-known publications.

A few weeks ago the "Municipal Journal" wrote to a great number of city engineers throughout the country and requested them to reply and state what particular subject they would specially like to see discussed in that publication. From 71 replies received, streets and street paving were of special interest to 25, sewage to 11, sewage treatment to 7, water supply to 9, street lighting to 4, engineering records to 4, drainage to 2, parks and playgrounds to 2.

We may reasonably assume that the interest in these subjects is about the same everywhere, and it would be a good idea, therefore, to take cognizance of this fact in arranging our program. However, there are many other matters to be considered besides engineering problems, and for this reason our readers are requested to forward any suggestions they may have to offer in connection with the matter.

Another thing to be borne in mind is the fact that there will be another session

of the legislature at the commencement of the new year, and any amendments or changes desired in the State laws should be taken up and disposed of at this convention.

A meeting of those living around the bay who are most interested in the work of the league will be called shortly in San Francisco to discuss this matter and outline such a program as will promise to be of the greatest benefit to all our municipalities.

THE NATIONAL MUNICIPAL LEAGUE AT LOS ANGELES

The annual convention of the National Municipal League will be held in Los Angeles, July 8th to 13th, and many men of national prominence in municipal work will be on the program. Mr. H. A. Mason, Secretary of the League of California Municipalities, will be one of the speakers and will tell what the league has done for the cities and towns of our state. There will be reduced railroad rates on "certificate plan" to this convention from all points in the state, which means a one and a third fare for the round trip.

COUNTY SUPERVISORS MEETING

The county supervisors will hold their third annual meeting at Bakersfield during the latter part of the present month. At their convention in Napa a year ago it was suggested that

they hold their meetings hereafter at the same time and place the league meetings are held. As the work of county officials and city officials is in many respects quite similar and both are constantly called upon to consider and solve practically the same problems, the idea has many advantages. The recent constitutional amendment authorizing commission government in counties adds strength to the suggestion, and the counties would derive a great deal of benefit from closer relations with the cities.

The practice of having an exposition of machinery and supplies in connection with our annual meetings will undoubtedly be continued, and this affords another argument why it would be advantageous all round for the county and city officials to meet at the same time and place and insure bigger and better exhibits by those dealing in municipal supplies. Of course the idea does not contemplate the consolidation of both organizations; that would be repugnant to each, and unwise for many other reasons.

TRADE NOTES

Of interest to City Engineers and County Engineers on the Pacific Coast, is the announcement of Messrs. ROBERT W. HUNT & COMPANY, Engineers, whose regular advertisement appears on page 201 of this issue, that they have recently installed in their San Francisco Physical Laboratories, a Standard Deval Abrasion Testing Machine for testing broken stone for road construction purposes as specified and recommended by the "Bureau of Public Roads", of the United States Department of Agricul-

ture. This is, as far as we know, the only machine of its kind in a commercial testing laboratory on the coast, and it is the only type of machine with which can be made the United States standard abrasion test for road metals.

At the same time Messrs. W. Hunt & Company announce the installation of a 200,000 pound Riehle Testing Machine for making tensile strength tests of steel and other construction materials, and also for making compression tests of concrete, stone, wood, etc. This is the largest machine of its kind in a commercial laboratory west of Chicago.

The installation of these two machines constitutes a notable addition to the already well-equipped laboratories of Robert W. Hunt & Company in San Francisco, and makes it possible to render their clients a most complete protective service as regards quality of materials offered for construction purposes. Their San Francisco address is 418 Montgomery Street.

An impression seems to prevail that tests and inspections of materials as made by commercial laboratory experts and specialists such as Robert W. Hunt & Co., are unduly expensive. The impression is very erroneous. Their charges are not high, and their service affords a protection that should not be neglected by the careful engineer, supervisor, city councilman or purchasing agent.

The various common construction materials offered for sale and for use—cement, steel, asphalt, stone, sand etc., are very far from uniform in quality. They are of all qualities, good, indifferent, and unfortunately some of them are utterly unfit for the purposes for which they are offered. In order

to make sure of their quality and value, expert inspection is required, examination necessitating the use of special apparatus which most purchasers cannot afford to own and maintain for themselves.

It is a matter which should be given careful consideration by our smaller Pacific Coast cities. The larger municipalities can and do afford to maintain chemical and physical laboratories, more or less complete departments devoted entirely to tests and inspections of construction materials, but the smaller cities, and most of the counties, for similar protection must depend upon the commercial laboratories such as the well-known firm of Robert W. Hunt & Company, and there is no doubt that it is a true economy.



THE AMERICAN CEMENT INDUSTRY

Ten years ago the production of Portland cement for the first time passed the 10,000,000-barrel mark, showing an increase of 2600 per cent over the production of ten years previous, and the giant strides that had been made in the industry were widely remarked. Even this production was small compared with that of the present day. In 1910, according to the report on cement by Ernest F. Burchard of the United States Geological Survey, the production of Portland cement reached the enormous total of 76,549,951 barrels, with a value of \$68,205,800. This is equivalent to 12,986,152 long tons, valued at \$5.25 a ton. It is an increase over the output for 1909 of 11,558,520 barrels, or nearly 18 per cent, and an increase in value of \$15,347,446, or more than 29 per cent. This increase alone is greater than the total output of Portland cement in 1900. In addition to Portland cement there were also produced last year 1,139,239 barrels of natural cement and 95,951 barrels of puzzolan

cement, a total of 77,785,141 barrels.

The price of Portland cement in 1910 was as low as 73 cents a barrel in some places, the average for the United States being 89.1 cents a barrel. In 1890 the average price was over \$2 a barrel, and as late as 1903 it was \$1.24 a barrel.

Mr. Burchard remarks that, measured by the capital invested, the cement industry is one of the world's three great extractive industries. Its capital employed it apparently far out-ranks the gold-mining industry of the United States including Alaska as well as the copper industry. Only coal and iron stand ahead of it.

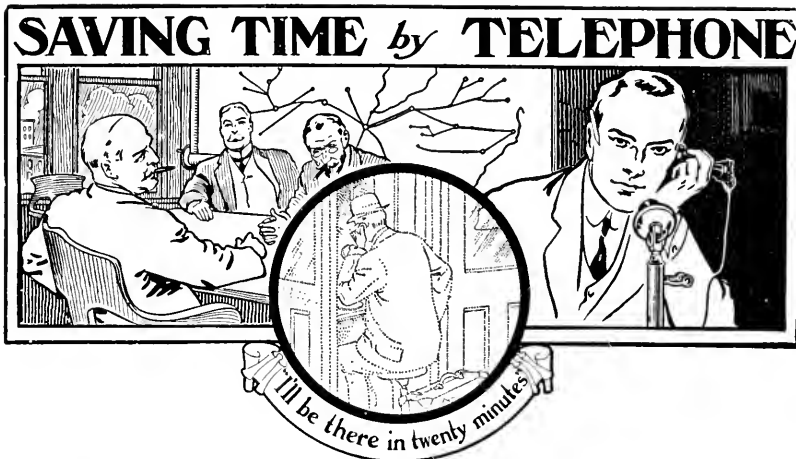
The principal constituent of Portland cement is limestone, and Mr. Burchard's report summarizes the most important limestone formation in all the states. The greatest of these are found in the eastern half of the United States, where there are enormous limestone deposits. The report is accompanied by a map showing the distribution of these limestones. The areas they cover comprise many thousands of square miles. The map also shows the location of the operating cement plants in the United States.

That the manufacture of cement is an American industry is shown by the fact that while our production last year was over 75,000,000 barrels our imports were only 306,863 barrels. Our exports were 2,475,597 barrels.

The following table shows the healthy growth of the American Portland cement industry and also the decrease in prices:

Production of Portland cement in the United States, 1880-1910—

Year—	Barrels	Average price per barrel
1880	42,000	\$3 00
1890	335,500	2 00
1895	990,324	1 60
1900	8,482,020	1 00
1905	35,246,812	9 00
1909	64,991,431	8 00
1910	76,549,951	8 00



Q When a man feels the necessity of being in two places at the same time he goes to the nearest telephone and sends his voice. It is not exactly the same thing but when a man talks hundreds of miles in opposite directions from the same Bell Telephone, it is about as good. In the daily use of the telephone a man travels all over town by wire in a few minutes. It is just as easy to travel all over the state and other states by means of the universal Long Distance Service of the Bell System.



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QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry.

Q. Does Paragraph 860 of the Municipal Corporation Bill give the Trustees of a city of the sixth class the power to make a recount in the matter of a disputed election for Trustees or would the matter have to be taken up under the Section 1111 et seq., Code of Civil Procedure?

Ans. Sec. 860 of the Municipal Corporation Bill gives full authority to a city of the 6th class to recount the ballots. Sec. 1111 et seq., Code of Civil Procedure, provides an alternative method. This question was settled in the case of *McGregor vs. Board of Trustees*, 159 Cal. 441.

Q. At the municipal election held April 8th, there were to be elected one Trustee for the short term and three for the long term, one Trustee holding over. Two candidates running for the long term received majorities, but the other two received the same number of votes; in other words, tied. Next Monday the Board meets to canvass the votes and organize. The question is, what will they do with the tied vote?

Ans. There are two ways to dispose of the tie vote. One is to proceed under Sec. 1067 P. C. and call a special election; the other is to have one of the candidates contest the election of the other with

whom he ties. This will enable the trustees to open the envelopes and recount the ballots, which of course, may result in the change of one or two votes and dispose of the tie. Municipalities are supposed to follow the general election laws of the State wherever practicable, and hence the section of the Political Code above quoted should be invoked unless you can prevail on one of the candidates to contest the election of the other. Such a contest need not be an unfriendly one, but merely for the purpose of disposing of the matter most expeditiously and without expense.

Q. Our people are not satisfied with the service of the present lighting company, and while there is a competing company asking for a franchise there is also considerable agitation for municipal ownership. What would you advise us to do?

Ans. We are inclined to think it might be best to turn your rate-making over to the Railroad Commission and not grant another franchise. Although competition may mean lower rates temporarily, it also means an unnecessary duplication of service upon which both companies will eventually demand a return in the form of interest, if not profit.

The success or failure of municipal ownership depends entirely on local conditions. Where efficiency is the aim in municipal government, public ownership might succeed, but if petty politics is practiced with the object of securing the spoils of office, it is doomed to failure. Undoubtedly the wisest plan would be to submit the matter to the Railroad Commission.

Q. Gentlemen: I wish your advice as to

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the time a resignation of a member of the Board of Trustees takes effect. For instance, a member's resignation is read to the Board March 11th and on motion the resignation is ordered filed. No other action has been taken by the Board in this matter since. Does the Board have to take any other action to create a vacancy as to the term of that particular member? If there is any ruling of the courts on this question a reference to one or two cases would be appreciated.

Ans. The resignation of a member of the Board of Trustees does not become effectual until his successor is appointed and qualified.

"As a general rule, the acceptance of the resignation by the proper authority is necessary to its validity" (29. Cyp. of Law, 1403), and cases there cited from Kentucky, Michigan, New Jersey and New York.

There was a case in the early history of California entitled *People vs. Porter*, found in 6 Cal. 26, where the court declared that a "resignation is effectual without its acceptance by the appointing power."

That early decision is not in accord with the general rule, however, particularly where the official is to hold office until his successor is elected and qualified. In such cases the officer resigning is assumed to hold his office up to the time his successor is sworn in.

Q. Can women legally serve on election boards? Must members of board be taxpayers? Answer.

Ans. Women may serve on election board. They do not have to be taxpayers.

Q. I will thank you if you can tell me:

1. About what is the percentage of the actual cash value of property at which it is assessed in cities in this State, speaking generally?

2. How does this compare with the valuation placed on property by the county in which any particular city is located; and

3. Is the State Board of Equalization in-

fluenced by valuations made by a city, so that it may be induced to raise the county valuation within a city where the city valuation is higher than the county valuation within the city? That is, is a city that gives a high valuation of its property in order to make a low rate and increase its bonded indebtedness making itself liable to a raise in valuation for county taxes, or what is generally the practice in that regard?

We would like to know whether any evil results can follow a high valuation by a city. Our present valuation is about 50 per cent on an average.

Ans. 1. The average assessed valuation of property located in cities and towns throughout the State runs from 50 to 60 per cent of its actual market value.

2. The average assessed valuation placed on property by the counties runs from 40 to 50 per cent of its actual market value.

3. The State Board of Equalization is not influenced by the valuations made by a municipality, but county assessors may be influenced in some instances; it all depends on the individual. The county assessor is influenced in some cases where the city assessor bears a high reputation. For instance, in the city of Alameda the county assessor accepts the figures of the city assessor, while in other parts of Alameda County the city assessors follow the valuations made by the county assessor.

No evil results are liable to follow a high valuation placed by a municipality. On the contrary, it enables a comparatively lower tax rate. Besides, the Political Code says the assessed valuation should be the actual cash value, which is esteemed to be about 60 per cent of the market value. Oregon assesses 100 per cent, or the market value, the same as the State of New York. It enables the Oregonians to show quite a lower tax rate, although the difference, of course, is merely a matter of figures.

AN ASPHALTIC GRAVEL MACADAM

By P. E. Green, in *Municipal Journal* and Engineer

In the fall of 1911, the city of Longview, Tex., after having paved the central part of the city with creosoted wood block, decided to put in a cheaper class of pavement on two of the less important streets. The pavement selected consisted of two courses, the base being ordinary water-bound macadam, and the wearing surface asphaltic macadam. The work was done by the same contractor who had the contract for the main paving work, and on a force account basis. The city owned a small jaw crusher and there was available a local "iron stone," which could be used for making the base course. This iron stone was a rather friable, weather-worn rock, and was mined at various small knolls surrounding the city. It was placed on the street using the crusher run and when well flushed and rolled formed an excellent, well-bonded foundation. It was not necessary to add any additional material to help out in the bonding of the stone, as there was considerable clay naturally enclosed in the native rock. This foundation course was laid with an average thickness of 8 inches.

For the wearing surface considerable more difficulty was encountered in deciding what material to use. In this part of Texas freight rates are very high, and there was no local stone available. Crushed limestone delivered on the streets cost about \$3.25 per yard, and even at that price was not the best material, being soft and dusty. A good quality of washed gravel was available at a price delivered on the street of about \$2.20 per cubic yard. Gravel is, however, rather unsuitable for use in mak-

ing a wearing surface which depends on bituminous cement for its bond. The reason for this is that gravel, being generally round and weather-worn, does not "lock" well together, and the strength of the wearing surface is dependent almost entirely on the bond of the bituminous cement. It was necessary, however, to decide which was to be preferred under the circumstances. The limestone had better locking qualities, but was high in first cost, and the amount of money available was limited. It was decided therefore to use the gravel and make every effort to lock or bond it by rolling.

This scheme was followed out, and gravel ordered for the wearing surface. It was specified that the gravel, as spread on the street, should be of a size that would pass a ring of 2-inch diameter and be held on a ring one-half inch in diameter. After a small yardage had been spread under these specifications, it was found that there was no "lock" at all between the stones, and that when filled with the bituminous cement but little strength was secured. It is believed that any bituminous macadam that depends only on the bond of the filler for its strength will be a failure, and therefore this yardage was taken up and the gravel afterwards used was still further screened so as to eliminate practically all pebbles below three-quarters of an inch in size. Thus a much more open material was secured and it was rolled and rerolled with a 10-ton roller. Considerable success was obtained in securing a surface that locked together, though at no time was as strong, unyielding a surface secured as it is possible to obtain by using crushed limestone or similar materials.

After the surface had been rolled to the satisfaction of the inspector, $1\frac{1}{2}$ gallons per square yard of Texaco asphalt was poured over the pavement, and immediately behind the asphalt, pea-size gravel was lightly spread over the surface, and the whole again rolled. This was then covered with one-half to three-quarters of a gallon per square yard of the asphaltic cement, and over this second coat of cement was spread coarse sand, and the whole again rolled.

By carefully grading the gravel, as explained above, and by taking the greatest care to see that no asphaltic cement was poured until the stone was thoroughly dried out, and then only during warm weather, a hard, compact surface was finally obtained which has since withstood a considerable traffic. The traffic is of a character which is very hard on a macadam pavement, consisting very largely of narrow-tired vehicles loaded with from one to three bales of cotton. The pavement has, however, withstood about three months of this traffic without any appreciable signs of loosening or rutting, with the exception of two or three small spots, which were promptly cut out and repaired. On account of the fact, however, that so much care had to be taken with the gravel used, and that it all had to be screened after being received in order to eliminate small pebbles which prevented the locking together of individual stones, it would probably have been cheaper to have purchased crushed limestone in the first place.

Over three gallons of asphaltic cement were used per square yard of pavement laid, but much of this represents waste, because of failure to get a bond in the gravel and its consequent removal. About two gallons per square yard of completed pavement was actually used.

All of this pavement has now been subject to a considerable local traffic, amounting to about 250 vehicles per day since January 1, 1912, and part of it to this traffic since November 15, 1911. It has held its bond well and there is no sign of rutting. Some conclusions may be drawn as to this method of construction. They are as follows:

First.—Force account work is nearly always expensive. It was in this case. This was partially due to extremely wet weather.

Second.—Gravel can be made to lock and bond only after a great deal of labor and trouble is taken with it.

Three.—The bond of an asphaltic macadam pavement should not depend on the asphaltic cement.

Fourth.—It would probably be economical to pay twice as much for crushed stone as for gravel to get equal results.



What the Cities are Doing

Marysville is remodelling its old city hall.

San Bernardino is procuring more fire hose.

South Pasadena is doing a lot of street work.

Napa is preparing to use oil for street sprinkling.

Folsom has voted the purchase of fire apparatus.

Chico is contemplating the purchase of a street flusher.

Hayward has purchased 750 feet of additional fire hose.

Roseville is about to install a municipal lighting system.

Stockton is about to install some street flushing machines.

Salinas is considering the installation of a municipal water system.

Vacaville firemen are planning to purchase a gasoline fire engine.

Santa Paula is considering the purchase of better fire fighting equipment.

Concord may purchase the local plant now supplying the town with water.

Mayfield is considering the adoption of the commission form of government.

Ukiah is purchasing more fire hose.

Long Beach recently voted down a proposed bond issue for a municipal pier.

Nevada City is figuring on buying an auto chemical engine and hose wagon.

Oroville has voted \$45,000 for remodeling and enlarging the grammar school.

San Mateo has voted in favor of adopting the commission form of government.

Sacramento trustees are planning a drainage system for the recently annexed districts.

Sisson has voted \$20,000 for a water system, \$15,000 for sewers and \$4,500 for a city hall.

Petaluma is about to purchase a motor driven fire engine with a detachable chemical system.

Sausalito has decided to install sewers in North Sausalito under the Improvement Act of 1911.

Oxnard has voted \$100,000 bonds for the water plant, and \$30,000 for a municipal lighting system.

Riverside will purchase an auto truck for the lighting department, and a runabout for the superintendent.

Alameda is installing electroliers on all the streets of the city. A large portion of the work has been completed.

Burlingame is planning better fire protection, to include more fire hydrants and additional hose carts and fire hose.

Newport Beach has voted bonds to the amount of \$27,000 for additional school facilities. The vote was 108 yes to 10 no.

Santa Rosa has made a contract with the Great Western Power Company to furnish the city with light and power for five years.

Oakland is procuring an automobile for the use of its playgrounds department; also another motor chemical engine for the fire department.

Redlands has a municipal employment bureau that has proved to be a great success. Last year 250 men secured employment through the bureau.

San Anselmo has voted bonds for sewer and street extensions. A proposition to issue \$6000 bonds for oiling the roads was defeated by a narrow margin.

Selma has voted \$10,000 bonds for fire apparatus, and \$6,500 for a new park site. The bonds for fire apparatus were carried 4 to 1, and those for parks 3 to 1.

Hillsborough has voted bonds to the amount of \$130,000 for municipal improvements, \$115,000 to be expended on the highways and \$15,000 on the fire department.

Red Bluff may have a new county court house and jail erected there shortly. The voters of Tehama County, on May 29, will vote on the proposition of bonding the county for this purpose for \$250,000.

Vallejo has commenced proceedings for a bond issue of \$175,000 to cover the cost of the city's share of a joint city hall and county jail, estimated at \$75,000, and a municipal lighting plant costing \$100,000.

Riverside may have a new city hall shortly if the plans of the business men mature. They are advocating a bond issue which will enable the construction of a building costing between \$65,000 and \$75,000.

Pasadena has recently received a proposition from one of the members of the Charter Revision Committee to incorporate a provision for the establishment of a municipal bank, but it is not meeting with enthusiastic support.

Richmond councilmen refused to order an election under a recall petition filed nearly two years ago. A writ of mandate against them was granted by the Superior Court, afterwards affirmed by the Court of Appeals and recently sustained by the Supreme Court.

San Diego is probably growing faster just now than any other California city, in proportion to its size. The bank clearings for February were over ten million dollars, an increase of nearly 100 per cent over the corresponding month of 1911, while the building permits were over two millions, being a gain of 126 per cent.

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

Write for Catalogs. Mention Pacific Municipalities When Writing

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S.F.

Asphalt Machinery

A. L. Young M'chy Co., 26-28 Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Arch. Terra Cotta

Gladding, McBean & Co., Crocker Bldg, S.F.
Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Automobile Public Service Wagons

American La France Fire Eng. Co., 660 Mission St., S. F.
Gorham Eng. & Fire App. Co., 48 Fremont S. F.
Webb Motor Fire Apparatus Co., 550 Montgomery St., S. F.

Bells

W. T. Garratt & Co., 277-279 Fremont St, S.F.

Bitulithic Pavement

Warren Brothers Company, Los Angeles, Cal.

Concrete Construction

Esterly Con. Co., Inc., 717 Market St., S. F.

Concrete Mixers

Barber Asphalt Paving Co., S. F. & L. A.
Parrott & Co., San Francisco & Los Angeles

Constructing Engineers

Geo. E. Dow Pumping Engine Co, S.F.& L.A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.
American Engineering Corporation, 57 Post St., S. F.
Stephen E. Kieffer, 1st Natl. Bank, Oakland
Nelson & Piper, 618 Mchts Trust Bldg., L. A.
Roberts & Dennicke, Sheldon Bldg., S. F.
Shipman, Denny & Rhame, Atlas Bldg., S.F.

Culverts

Cal. Corrugated Culvert Co., Los Angeles and W. Berkeley
Standard Corrugated Pipe Co., S. F. & L. A.
U. S. Pipe Co., S. F.

Dump Carts and Wagons

A. L. Young M'chy Co., 26-28 Fremont St., S.F.
Watson Wagon Co., Canastota, N. Y.

Electrical Plants & Machinery

A. L. Young M'chy Co., Fremont St., S. F.

Engravers and Bond Printers

A. Carlisle & Co., 251 Bush St., S. F.
Sierra Art Eng. Co., Front & Com. Sts., S. F.

Engineers' Supplies

W. T. Garratt & Co., 277-279 Fremont St, S.F.

Fire Department Equipment

Gorham Eng. & Fire App. Co., 48 Fremont F. S.

Fire Engines

Gorham Eng & Fire App Co., 48 Fremont St S. F.

Fire Hose

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.
Gorham Eng & Fire App Co., 48 Fremont St S. F.
The Gutta Percha & Rubber Mfg. Co., 34 Fremont St., S. F.
The Diamond Rubber Co.
Eureka Fire Hose Mfg. Co., 54-58 Fremont St., S. F.
Bowers Rubber Works, San Francisco

Fire and Police Boats

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Pumps

Geo. E. Dow Pumping Engine Co, S.F.& L.A.

Gasoline Engines

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Hydrants

Water Works Supply Co., Monadnock Bldg., S. F.

Inspections and Tests

Robt. W. Hunt & Co., 418 Montgomery, S. F

Machine Works

W. T. Garratt & Co., 227-229 Fremont St, S.F.

Municipal Accountant

William Dolge, C. P. A., 311 California St., S.F.

Municipal Castings

Geo. E. Dow Pumping Engine Co, S.F.& L.A.
Pacific Foundry Co., 18th & Harrison, S. F.

Municipal Engineers

Sloan & Robson, Nevada Bank Bldg, S. F.
Roberts & Denicke, 461 Market St., S. F.
Shipman, Denny & Rhame, Atlas Bldg., S.F.

Municipal Printers

A. Carlisle & Co., 251-253 Bush St., S. F.

Municipal Water Works

Geo. E. Dow Pumping Engine Co, S.F.& L.A.

Office Furniture

H. S. Crocker Co., 674 Mission St.

Packings

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Pavement Materials

Barber Asphalt Paving Co., S.F. and L. A.
Warren Brothers Company, Los Angeles, Cal.

Pipes

U. S. Iron Pipe & Foundry Co., 701 Monadnock Bldg., S. F.

Pumping Machinery & Supplies

W. T. Garratt & Co., 277-279 Fremont St, S.F.
Geo. E. Dow Pumping Engine Co, S.F.& L.A.
Water Works Supply Co., Monadnock Bldg., S. F.

LIST OF RESPONSIBLE FIRMS—Continued

Playground Apparatus

A. L. Young Machinery Co., S. F.

Road Machinery

The Good Roads Mach'y Co., Ft. Wayne, Ind.

A. L. Young M'chy Co., Fremont St., S. F.

Barber Asphalt Paving Co., S. F. & L. A.

Roofing

Barber Asphalt Paving Co., S. F. and L. A.

Rubber Goods

Gorham-Revere Rubber Co., 50-60 Fremont

St., S. F.; 1237 S. Olive St., Los Angeles.

The Diamond Rubber Co.

Bowers Rubber Works, San Francisco

Sanitation Expert

Harold Farnsworth Gray, Berkeley, Cal.

Scrapers

A. L. Young M'chy Co., Fremont St., S. F.

Septic Tanks

Pacific Flush Tank Co., Chicago.

Sewage Pumps

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Sewer (Concrete)

Esterly Con. Co., Inc., 717 Market St., S.F.

Sewer Fittings

Pacific Foundry Co., 18th & Harrison, S. F.

Pacific Flush Tank Co., Chicago.

Sewer Pipe and Terra Cotta

Gladding, McBean & Co., Crocker Bldg, S. F.

Steiger Terra Cotta Co., Mills Bldg., S. F.

N. Clark & Sons, 112-116 Natoma St., S. F.

Sewer Systems

Sloan & Robson, Nevada Bank Bldg., S. F.

Street Sweepers

A. L. Young M'chy Co., Fremont St., S. F.

Suction Hose

Gorham-Revere Rubber Co., 50-60 Fremont

St., S. F.; 1237 S. Olive St., Los Angeles.

Water Meters

Neptune Meter Co., S. F. & L. A.

Water Works Supply Co., Monadnock Bldg., S. F.

Water Works Equipment

Water Works Supply Co., Monadnock Bldg., S. F.

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Wires

John A. Roebling's S6ns Co., S. F.

Water Works Supply Co., Monadnock Bldg., S. F.

Valves

Water Works Supply Co., Monadnock Bldg., S. F.

Gorham-Revere Rubber Co., 50-60 Fremont

St., S. F.; 1237 S. Olive St., Los Angeles.

Sidewalks (Cement)

Esterly Con. Co., Inc., 717 Market St., S. F.

Steel Protected Concrete Co., Phila., Pa.

Street Signs

A. L. Young Mch. Co., S. F.

California Metal Enameling Co., Bairdstown, L. A.

REGULATION OF THE MOVING PICTURE SHOW

It is the duty of the public officers in every community to find out first of all if the lantern booth is provided with up-to-date safeguards. To such officials it should be said: Require the operators to submit to an examination for a license. Don't grant licenses to boys.

Don't authorize these theaters above or below the ground floor.

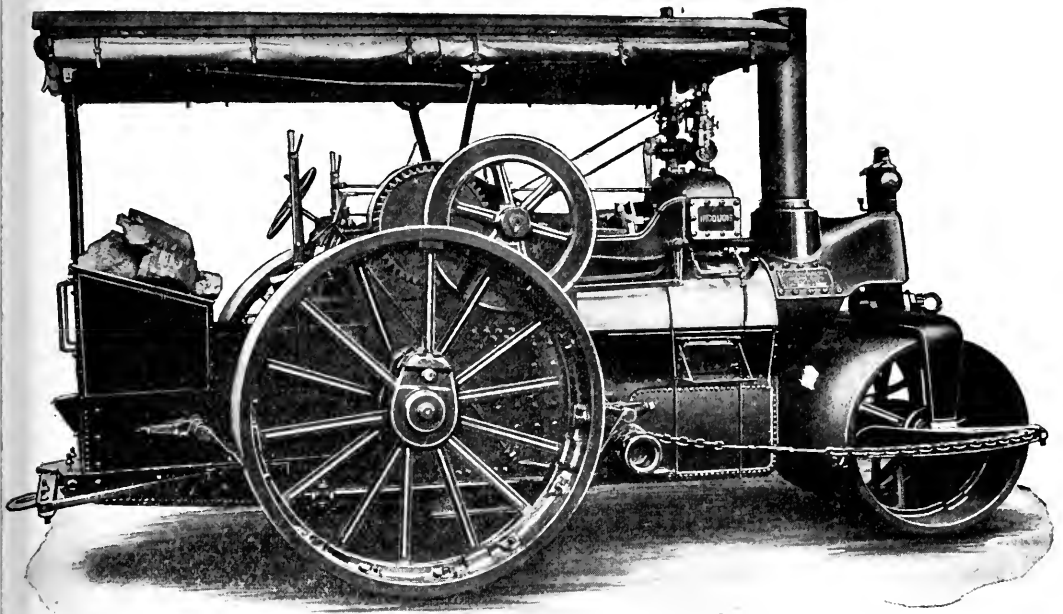
Don't grant a license to a moving picture show unless the lantern booth is located in the end of the theater *farthest* from the exit. In most single exit theaters, the lantern, the greatest source of danger, is placed between the audience and its only means of escape. But better still, don't grant a license to a theater which has an exit on only one street. There should be proper exits leading to

at least two streets or passageways. A moving picture theater ought to be located on the corner of two streets. If it is so placed that there can be exits from three sides, so much the better. If there is an exit on only one street, there ought to be fireproof passageways with proper exit doors on both sides of the theater, of ample width, leading directly to this street. By all means, provide sufficient exits.

Follow the example of Indianapolis as to fireproofing the auditorium. There is great danger to human life as the motion picture show is now conducted. There is great danger to surrounding *property* in bad fire districts.

It is your duty as public officers to provide adequate safeguards for such places of amusement.

It is your duty to act, and to act now.
—Case and Comment, March, 1912.



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The Machinery Department of

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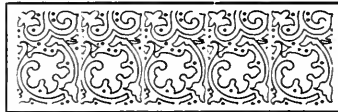
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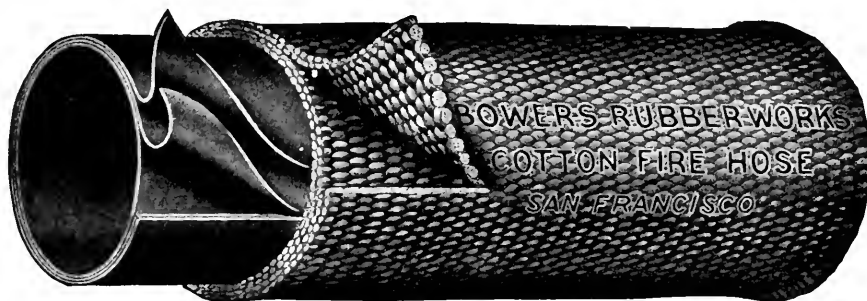
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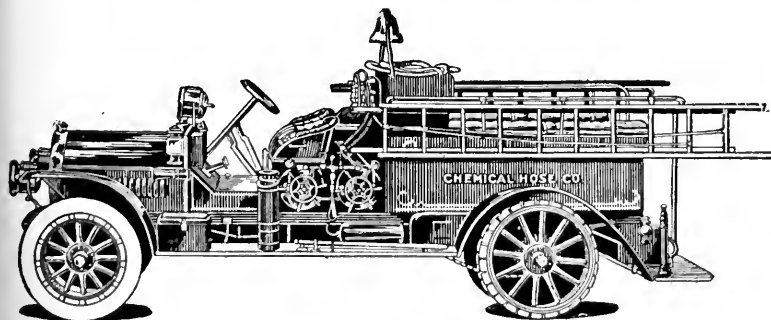
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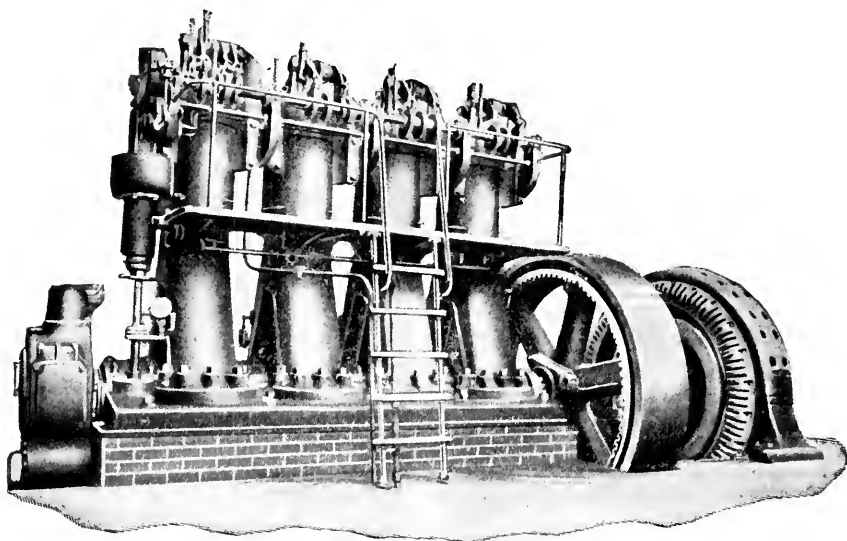
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The most economical method of utilizing California fuel oil is by a

Dow Willans Diesel Engine

This engine is built after the designs of the famous Willans Diesel engine, which has made such a wonderful record in the municipal electric plants of England and Europe. It has been slightly modified to meet American conditions, and using fuel oil, will develop electric energy for

One-fifth of One Cent Per Kilowatt Hour

These figures are based on the present price of fuel oil, or 85c per barrel of 42 gallons. We build this engine in sizes from 50 H. P. to 1000 H. P. and every engine is sold with a positive guarantee of fuel consumption.

Municipal officers interested in securing better electric service, will be given every opportunity to investigate our claims.

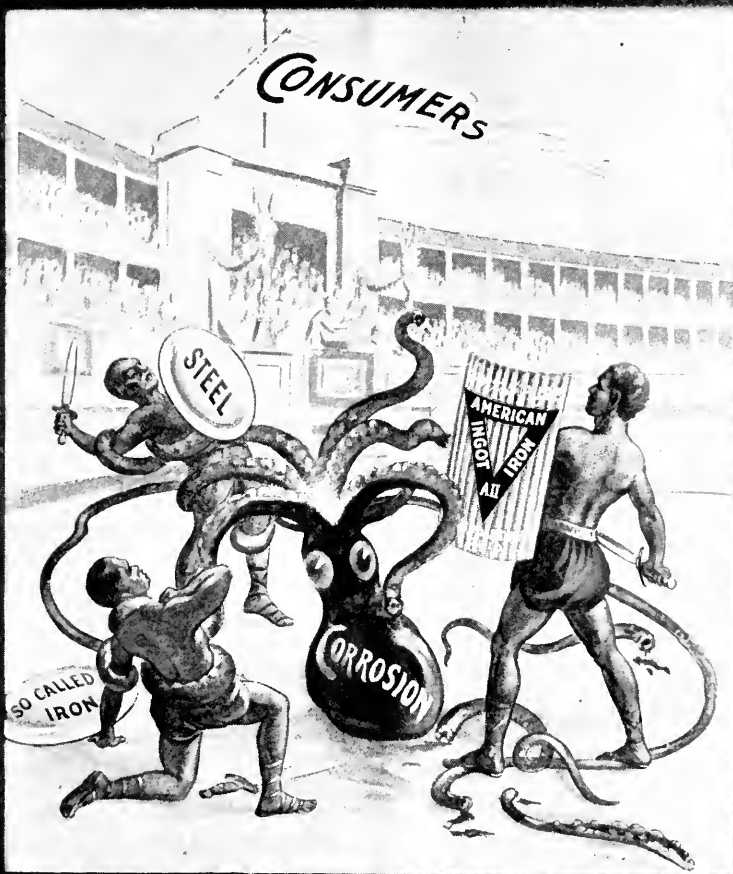
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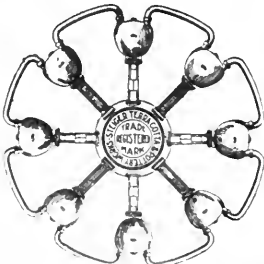
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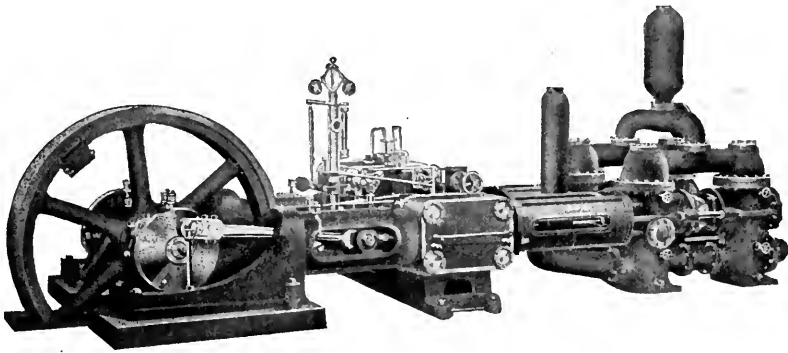
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\$1.50 Per Day and Up With Private Bath****HOTEL HACIENDA****A Modern, High Class Popular Priced
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Or Month****580 O'Farrell Street,****SAN FRANCISCO, CAL.****Steiger Terra Cotta and Pottery Works****MAIN OFFICE AND YARDS:****City Yard, 18th and Division Streets****Main Office: 729 Mills Building****Phone Douglas 3010****SAN FRANCISCO, CAL.****Factory, South San Francisco
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California Municipal Affairs

Are better administered than any other State of the Union. This condition is particularly exemplified in the universal high excellence of the municipal water works systems found here. In almost every instance machinery of the highest quality is installed. Foremost among such machinery stands the

Dow Pumping Engine

This pump was developed and is made in California. It has a remarkable record for efficiency and low upkeep expenses, but what is more important, it has an unbroken record for reliability. There is not a single recorded instance of failure when put to the test of fire fighting, it matters not how long or heavy the service demanded.

This is the type of pump to buy for your town; the pump in which dependence can be placed at a critical time. It will be well for you to talk this matter of reliability over with our engineers.

Call or write either office

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DURABILITY - ECONOMY - QUALITY

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Insist on the best. The

Reliability

of our siphon is never dis-
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PACIFIC FLUSH-TANK COMPANY
The Temple, CHICAGO Singer Building, NEW YORK

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"And We Have Only Made a Start"

Seagrave Motor-driven Hook and Ladder Trucks, Hose Wagons, Chemical Engines and Combination Hose Wagons and Chemical Engines, in service in the State of California	24
Seagrave Motor Apparatus, as above; ordered for California, but not delivered	11
All other makes of Motor-driven Hose Wagons, Chemical Engines and Combination Hose Wagons and Chemical Engines, in service in the State of California	17
All other makes of Motor Fire Apparatus as above; ordered for California Cities, but not delivered	5
"AUTO PUMPING ENGINES are not included in the above figures, because The Seagrave Company does not build them, therefore are not competitors for this kind of business."	

According to the above figures we have in service in this State more machines by 70% than all our competitors combined (and there are eight different makes in the 17) and we have more unfilled orders, according to the above, by 22% than all our competitors combined.

We publish the above for the benefit of prospective purchasers of Motor Fire Apparatus and for the reason that such a showing is the strongest possible argument for the superiority of

Seagrave Motor Fire Apparatus

The most perfect salesmanship cannot make up for merit in such important equipment, therefore, it must be assumed that real intrinsic merit alone is responsible for the great preponderance of SEAGRAVE MOTOR APPARATUS over all makes in this territory.

Not one of our competitors has more than one piece in any city, except Long Beach, which was the first city in this State to place Motor Fire Apparatus in service. LONG BEACH has just ordered a piece of Seagrave Apparatus. On the other hand, Seagrave Motor Apparatus has been repeatedly re-ordered by San Diego, Los Angeles, Oakland, Riverside and Pasadena.

"The proof of the pudding is in the eating thereof."

Gorham Fire Apparatus Co.

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Quality and Workmanship Count

The Newport Genuine Open Hearth is the purest and best made culvert to be used on your Road making.

New booklet just out---Ask for it, and we will mail it to you free of charge with our artistic calendar for 1912-13.

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UNIVERSITY OF CALIFORNIA
Berkeley, California, September 23 to 28, 1912

in connection with the annual meeting of the State Board of Health and California Health Officers, we will have

The Largest Exposition

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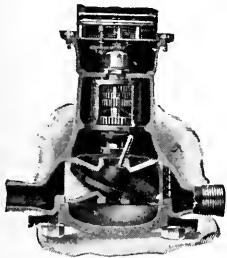
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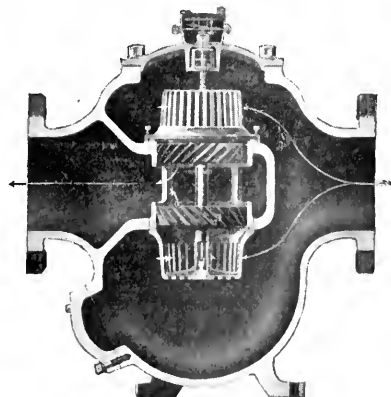
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This bar is **Self Anchoring**, the Dovetailed Web holding it firmly in place **Every Inch of its Length**, requiring no hooks, clips, bolts or wires at intervals allowing buckling or expansion, resulting in loosening of other devices.

IT HAS A RECORD OF TEN YEARS' USE WITHOUT FAILURE

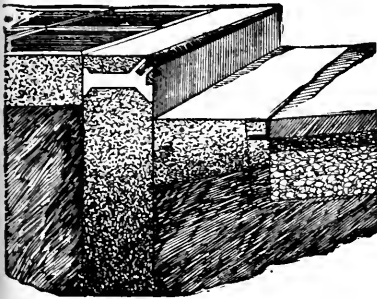
This bar is the main feature of the

WAINWRIGHT STEEL-BOUND CONCRETE CURB

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March 26, 1907. August 29, 1907. August 2, 1910.

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Cheaper Than Granite
GALVANIZED STEEL-CORNER BAR Prevents Chipping or
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This Curb is Mechanically Perfect and Unequaled for Curved
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**THIS CURB WILL STAND HARDER USE AND LAST TEN
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Contractors can make money by laying this curb.

City Engineers can save money by specifying it.

Architects are invited to read pages 242 and 243 "Sweet's
Index."

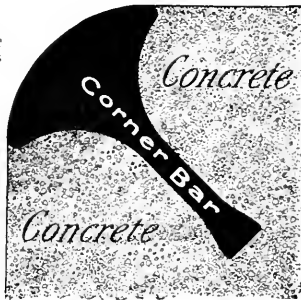
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Pacific Coast Representatives:

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San Francisco, R. C. Oliphant, Williams Building
Los Angeles, Tood-Chase Co., Security Building

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We originated the **Seamless Rubber Lined Cotton Hose**,
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three ply

two ply

Eureka Fire Hose bought sixteen years ago can be seen today in
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The only circular and seamless woven fire hose made.

All sizes for every possible use.

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Manufacturers of

ARCHITECTURAL TERRA COTTA, PRESSED BRICK

VITRIFIED AND TERRA COTTA PIPE

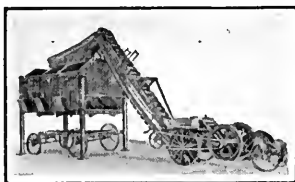
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Built in several sizes

Send for catalog of Crushers, Dump Wagons, Road Graders, Steam Rollers, Sprinklers, Sweepers—Everything for Building Roads and Streets.

The GOOD ROADS MACHINERY COMPANY, Fort Wayne, Ind.

Coast Representatives: A. L. Young Machinery Co., San Francisco; Geo. A. Rodgers, Los Angeles

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OFFICIAL ORGAN OF THE LEAGUE OF CALIFORNIA MUNICIPALITIES

Entered at Post Office, Santa Clara, Cal., as Second-Class Matter

VOL. XXVI

FOURTEENTH YEAR

No. 5

EDITORS - - - H. A. MASON AND WM. J. LOCKE

EDITORIAL OFFICE - NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO

PUBLICATION OFFICE, - - - SANTA CLARA, CALIFORNIA

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Published Monthly. Yearly Subscription, \$2.00 in Advance. Single Copies, 25 Cents

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Organized 1897

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PACIFIC MUNICIPALITIES

A Journal for Progressive Cities

VOL. XXVI

MAY 31, 1912

No. 5

SAN BERNARDINO'S NEW AUXILIARY PUMPING PLANT

Written Expressly for Pacific Municipalities by Will L. Brown, Engineer
to Water Commission

San Bernardino has always taken a high rank in the list of California municipalities. It is particularly noted for the successful and economical management of its water system. The Board of Water Commissioners have always followed a broad policy in regard to extensions and have encouraged in every way upbuilding of outlying sections.

All new improvements and extensions have been made with an eye to the welfare of future generations, as well as to insure the best possible system for the present water users. Several sources of supply at widely separated locations are provided, so that accidents at one plant or a localized catastrophe, will not affect the system of the city at large. In line with this policy the Board of Water Commissioners have recently erected for the city a new plant at the Perris Hill tract. The property secured is an exceptionally choice piece of water bearing property near the higher portion of the city. Nearby is a hill, 160 feet high and conveniently located for a high level reservoir. On this tract two 15-inch wells were bored, each to have a continuous capacity of not less than 1350 gallons per minute. Well No. 1 exceeded this amount by 20%. Concrete caisson pits, 8 feet inside diameter and 60 feet deep, were sunk at each well. Well No. 1 was equipped with apparatus as described in the following paragraphs:

A 7-inch single stage vertical centrifugal pump was mounted on a structural steel frame suspended in the pit. This pump was guaranteed to deliver 1350 gallons per minute against a 70 foot head and into a low level sand box and reservoir. This pump is belt driven by a 50 H. P. 440 volt 3 phase 50 cycle induction motor. Running at 930 R. P. M. and of a special design. To pump the water from these settling reservoirs into the high level reservoir or the city distributing system as explained below, a second pump was installed near the settling reservoir. This pump is a 7-inch horizontal 2-stage centrifugal pump with extended base, on which the driving motor is mounted, and guaranteed to deliver 1350 gallons per minute into a high level reservoir against a static head of 155 feet. By a suitable arrangement of gate valves

this pump can discharge direct into the city distributing system, using the reservoir as an overflow, thus providing a high degree of flexibility.

A 100 H. P. 440 volt, 50 cycle 3 phase induction motor, running at 725 R. P. M. is mounted on the extended sub-base of the pump.

The contractor met with a great deal of bad luck in this work. The most serious accident was losing 40 feet of heavy 10-inch suction pipe, due to the breaking of a temporary suspension holding it in place, thus allowing it to fall into the well. Fishing the pipe out required three weeks' time, and incidentally caused considerable damage to the well, due to sand running in. When the suction pipe had been removed this damage was found so great, that deepening the pit was necessary. Work was promptly started and the pit deepened an additional ten feet. Several other minor difficulties were encountered and it is altogether probable that the contractor is out of pocket more than his anticipated profits. Notwithstanding all these difficulties, the plant as finally completed is a model in every way, and excels the contract requirements with a good margin to spare.

The contracts under which these pumps were installed was of rather advanced type and covered the overall efficiency of the plant as expressed in dollars and cents instead of the customary percentage of efficiency often so difficult to understand and over which many misunderstandings can easily arise. This contract specifically stated that these two pumps were to deliver a continuous flow of 1350 gallons per minute against a 225-foot head at a cost not to exceed \$1.4897, or \$1.10 per thousand gallons, electric power being supplied at 1½ cents per kilowatt hour. The test provided likewise was rather more strenuous than is ordinarily made, calling for a 24-hour continuous run.

The vertical pump was operated for some hours before the test and until the conditions in the well were normal and the water level remained nearly constant. During the early portion of the test, readings were taken every fifteen minutes, but during the remainder of the test one-half hour intervals were observed. The following data taken from the official report to the Board of Water Commissioners, gives complete information as to the performances of each motor and pump:

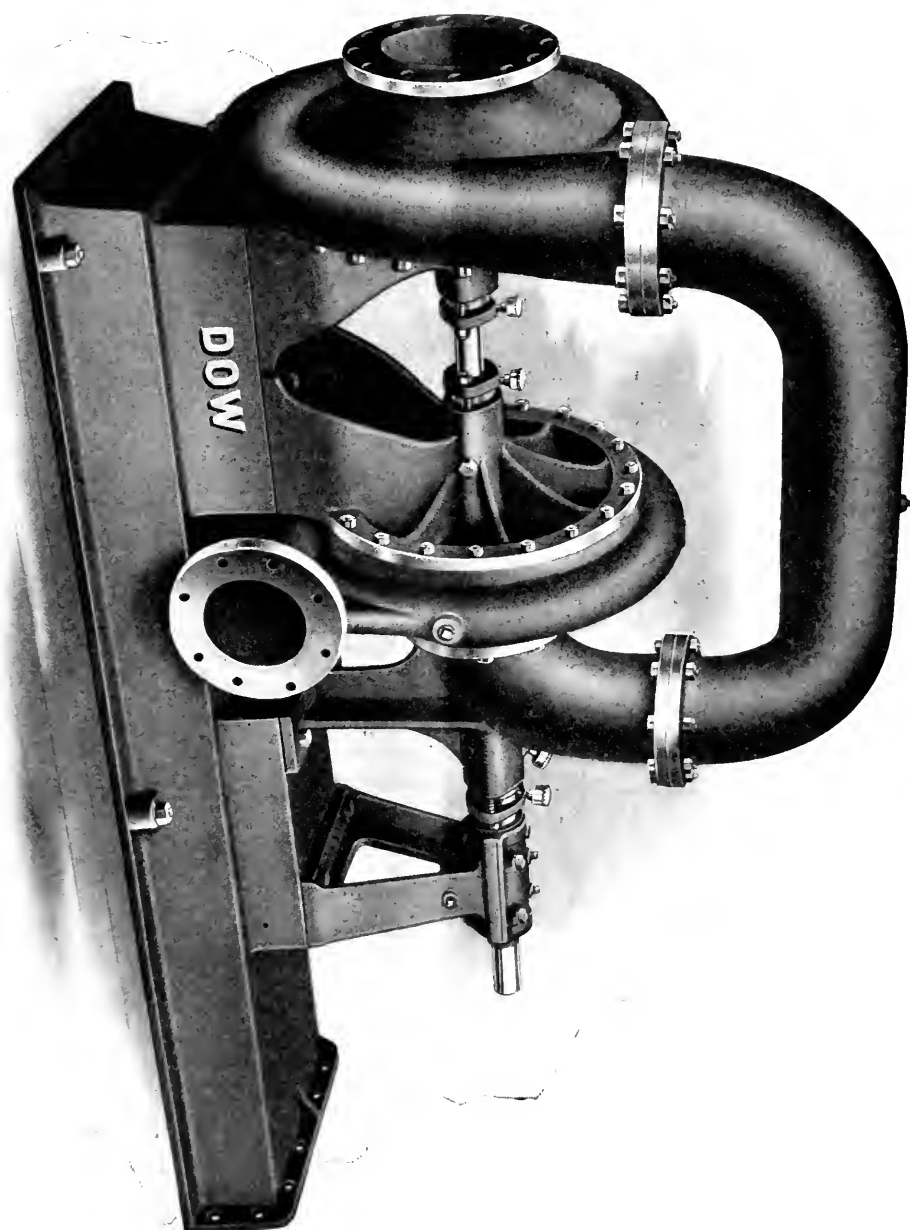
"Power was turned on at 10:20 a. m., Jan. 2, 1912, and the following data recorded:

Total water delivered by vertical pump in 24 hours.....	1,966,299 Gal.
Average, per minute, for total run.....	1365.4 Gal.
Total lift in feet.....	72.5
Total water delivered by two-stage pump in 24 hours.....	1,950,898 Gal.
Average, per minute, for total run.....	1354.5 Gal.
Total lift in feet.....	156.5
Total power consumed by both pumps in 24 hours.....	2354.49 KW.
Average, per hour, for run.....	97.73 KW.

Power turned off at 10:20 a. m., Jan. 3, 1912.

A more convenient comparison with contract requirements can be made by consulting the following table:

	Vent.	Pump	2-Stage Pump		Power	
	Water per min.	In feet Head	Water per min.	Head in ft.	K. W. per hour	Cost per hour
Quantities Measured	1365.4 gal. 151.7 in.	75.2	1354.7 150.5 in.	156.5	97.73	1.4659
Contract Requirements	1350 gal. 150 in.	70	1350 150 in.	155	160	1.4879

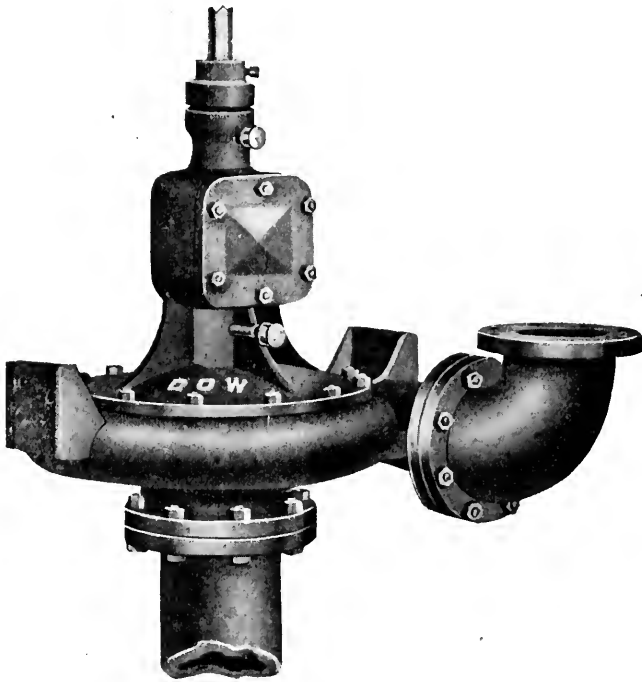


The machinery behaved admirably, all bearings and moving parts ran cool, and the whole installation was in excellent working order.

A duplicate set of power recording instruments were used during the test. A discrepancy between the meter installed to record power received and this set, was noted. As soon as the run was completed the meters were thoroughly tested and found to read 1.4% in excess of actual current transmitted. It was adjusted to read correctly by the electrician.

The results given above are corrected for this error.

All together the plant is first-class in every particular and the contractor is to be commended for completing his contract in such a satisfactory manner in face of a certain deficit. At no time did he need urging, nor did he make complaint regarding the conditions imposed. This well as completed is a very material addition to the excellent water supply of San Bernardino.



In closing, a few words concerning the Board of Water Commissioners is appropriate. This Board is appointed by the Mayor under the Charter of San Bernardino, and has sole control of the water system and water revenues of the city. The original Board consisted of A. G. Kendall, President of the Farmers' Exchange National Bank, F. T. Perris, Manager Oil Properties Santa Fe R. R. Co., and M. D. Katz, a business man and capitalist. The first superintendent under this Board, Mr. William Starke, still remains as superintendent.

The conduct of the water system has been so efficient and marked by such a high degree of harmony, both between consumers and the commissioners, that each succeeding Mayor has re-appointed the original members of the Board, so that the personnel of the Board has been the same and one continuous policy of extensions and betterments has been observed. All in

all the water system of San Bernardino shows the advisability of keeping public utility commissions entirely outside of politics and the appointing the evidence adduced in the above description the engineering department of this company of broad, well balanced and capable business men to these positions. When this system of taking care of the public utilities is sufficiently inaugurated, much of the criticism now directed toward the operations of utilities by the municipality will be eliminated.

Editor's Note: The contractor for the undertaking described above was the Geo. E. Dow Pumping Engine Company of San Francisco and Los Angeles. According to the evidence adduced in the above description the engineering department of this company is certainly to be complimented on the excellence of their mechanical designs as well as the efficient manner in which unusual difficulties encountered were overcome.



ADVANTAGES OF PROTECTED CONCRETE CURBING

Written Expressly for Pacific Municipalities by H. A. Miner

As the use of concrete curbing has rapidly increased and extended throughout the United States, it has been found advisable to use a suitable galvanized steel corner bar to protect the edges of the curbing, and that which has proved to be the most conspicuous success in this connection is known as the Wainwright Galvanized Steel Corner Bar. During the past 14 years this protected curbing has been used throughout the United States to the extent of over 4,000,000 feet and in a total of over 400 cities and towns, giving universal satisfaction wherever it has been laid and used according to directions.

This curbing is much more durable than granite or any other natural stone for the reason that the only vulnerable part of a street curbing is its outer or street edge, and where this edge is protected by a suitable steel nosing the curb will stand more use and abuse without damage than is possible for curbing made of natural stone.

Prior to the great fire in Baltimore a few years ago, it was the practice in that city to use the best granite curbing money could buy, but this natural stone curbing was ruined by the fire; therefore as a result of their experience, the city officials, in re-paving the streets of Baltimore, for the first time prescribed the use of Wainwright steel-bound concrete curbing and they have used it **exclusively** all over the City of Baltimore ever since. It has given much better results than was ever obtained with granite, both in appearance and durability, and, in the words of the city engineer, it has saved the city enough in a single job to pay his salary for a year.

This curbing is frequently used on streets where there are driveway entrances, in which case the curbing is lowered at the driveway to within two or two and a half inches of the gutter line, and the corner bar is then used to protect the entrance corner. Constructed in this manner the curbing on

driveways which have been laid for ten years and subjected to the most severe traffic under loads of six or eight thousand pounds have continued to hold intact, whereas granite curbing previously used had worn out in two or three years. The superior value of the Wainwright protected concrete curbing has also been demonstrated in many cases where it has been used in the rear of large department stores, such as in one case where it was subjected daily for fourteen years to the wear and tear incidental to the loading

including Seattle, Portland and several other cities in Washington and Oregon.

The accompanying illustration is a cut showing the Adams Express Office at the Pennsylvania Railroad Terminal in Camden, N. J. The curbing here was laid in 1899, and today is substantially in perfect condition notwithstanding the fact that it has been run over twice by a heavily loaded trolley car. Many tons of freight and merchandise are handled daily at this place, being loaded into trucks and



and unloading of hundreds of tons of merchandise. In every case this curbing is still as good as new. Natural stone or plain concrete curbing would have been broken and re-placed many times over.

A great number of cities which have formerly used granite curbing are now confirmed users of large quantities of steel-bound concrete curbing. In addition to Baltimore there is Philadelphia, New York and New Orleans, besides many towns on the Pacific Coast

wagons which are constantly backing up against the curb without inflicting the slightest damage.

It is not a stretch of the imagination to say that the protection afforded to concrete curbing by means of the Wainwright Galvanized Steel Corner Bar is as great an improvement in this line of construction as the iron tire is to a wooden wagon wheel, and judging from the many years of experience the writer has had in this business it would appear that no one is likely to

live long enough to see one of these curbs fail or wear out, where the same has been properly laid. In the meanwhile you have a curb which preserves perfect alignment by reason of continuity of construction. It is far more ornamental in appearance than natural stone, or a plain concrete curb, either of which will become chipped on the slightest abuse; besides this, in the case of natural stone, one or more lengths will often shift or settle after a time, thereby destroying the alignment and becoming unsightly.

In many California towns it has been the custom to use redwood curbing as a temporary expedient, but this is only a makeshift at the best and the continuance of this practice is not sanctioned by good judgment. The best engineers are repudiating make-

shifts of all kinds believing that in every kind of construction it pays best in the long run to use only the most solid and durable materials.

Any city can save a great deal in the cost of street improvements by making their curbs and gutters of concrete. As it is a well-known fact that cement concrete improves with age, such work will be substantial and permanent in character providing the curbing is properly laid and protected by a suitable corner bar. In some cities this work can be done at about one-half the cost of natural stone curbing, and the results obtained are not only better in every way, but give the appearance of greater solidity, and therefore are more pleasing and attractive to the eye.



PERMANENCY VS. TEMPORARY EXPEDIENCY IN HIGHWAY CONSTRUCTION

BY P. W. ROCHESTER

We frequently hear this designated as the "Automobile or Motor Age," as the "Concrete Age" or again as the "Good Roads Age," and in fact it is the three in one, as they go hand in hand together, or "side by each."

The growing use of automobiles, both for pleasure, commerce and heavy traffic is constantly developing the absolute necessity of better, stronger and more permanent road construction.

It seems that as soon as an improved type of road has been developed, the traffic grows more trying and destructive.

The modern trunk line railroad has to be built to carry, with the minimum amount of friction and jar, the heaviest consistent equipment and at the highest safe speed. This calls for ideal road beds, ample ballast and heavy steel. All of our trunk line railroads that have been in use for any considerable time, have had to be rebuilt, and some of them several times, and each time stronger and for greater permanency and more comfort.

The modern passenger automobile is being built to attain high speed, and the business trucks are designed and

constructed for heavy, and increasingly heavy, loads.

Within the past year one of the principal counties in the State of Washington spent several hundred thousand dollars on "Pretty Picture Roads," but they had hardly been finished before several commercial automobile truck lines were organized to ply over them and competition caused these several companies to secure larger and heavier equipment, creating 12 to 14-ton loads,

county expressed his belief that all principal highways should be built on a **concrete base** of at least six inches.

The word "concrete" is derived from the two Latin words "cresco"—to grow, and "con"—together, and it necessarily follows that in speaking of concrete, for road making, we should only rightfully refer to "Portland Cement Concrete" as the phrase "Bituminous concrete" is a misnomer.

It is universally recognized that a



RECONSTRUCTION OF NEW ROAD NECESSITATED BECAUSE OF WEAK FOUNDATION

(including trucks) and as a consequence the roads began to show such weakness as to cause the Commissioners of the County to cite the representatives of the several truck companies to appear before them, and after full discussion, an order was issued limiting all loads, including trucks, to seven tons.

These roads were constructed on a rock macadam or a bituminous base, and at the hearing the engineer of the

concrete made under proper specifications, with Portland Cement as its binder, becomes stronger, harder, and more everlasting with age, as no natural climatic conditions deteriorate it. This cannot be truthfully claimed where bitumen is used, as evaporation, oxidation, and disintegration is taking place from the moment it is laid.

It is true that you can practically hermetically seal a bituminous base, and if it is perfectly proportioned with

a high grade bitumen, it will last a very long time if not put under stress—but the “bond” is easily broken and then it becomes immediately affected by the crushing pressures from above and possibly from moisture and other decomposing causes from below.

We have read with considerable interest the proceedings of the Fourteenth Annual Convention of the League of California Municipalities, held at Santa Barbara in October last. We have been especially pleased with the very forceful and logical arguments of Highway Commissioner Morton of San Joaquin, Engineer Finkle of Los Angeles, and Engineer Randle of Sacramento. These gentlemen seem to have had the advantage of long and valuable experience and treat the **necessity** of a “rigid base” and a “Portland Cement Concrete Slab” with the respect and importance that is justly its due. As one of these gentlemen truly said,—if you want an **“absolutely perfect road”** you must have a “Portland Cement Concrete Base” regardless of your wearing surface.

A bituminous base has no supporting power at any period of its existence, and especially after the first few years, after the volatile oils and gases have evaporated or oxidized and only “carbon” or practically coal dust is left to do the “binding.”

The following extract is from an article in *The Scientific American* of March 16, 1912, entitled “Good Roads and How to Build Them”, by Logan Waller Page, Director, Office of Public Roads, U. S. Government, Washington, D. C.:

“Surface applications of native or artificial bitumens of varying consistencies have been very popular for several years. The general opinion has been that the asphaltic

base would gradually accumulate from each application and the road surface would thus be strengthened from year to year. For a time this has worked well and, where care and skill have been exercised, a gradual upbuilding of the road surface has resulted, especially where considerable quantities of stone screenings or chips were added after each application of the binder. But present indications are that this upbuilding process is not always permanent. In many cases, the binder seems to lose its life or binding power after the lapse of a few years, and the entire surface which has been so slowly and laboriously built up crumbles and goes to pieces. Just what is the cause of this seemingly rapid deterioration after a number of years and how many of the binders are thus affected is as yet unknown. But the failures which have been recorded up to the present time are sufficient to create considerable anxiety among road builders. Much additional investigation, research and experimental work is needed to determine the extent and exact cause of these failures as well as how to prevent their occurrence in the future.”

Those who have followed the trend of Mr. Page’s work can but admit that he has been a consistent investigator of “Bitumens and oils.” No man in his position could have given these ingredients a more thorough exploitation. The fact that **time** is proving the falacy of many theories and experiments should be taken advantage of to our profit.

We are told that practically all of the roads which have been built by Los Angeles County with the \$3,500,000 bond issue will have to be reconstructed at an early day. This seems almost a tragedy. Building “short time roads” on “long time bonds,” will not be often repeated, as the public will not remain unaware of this kind of “frenzied foolishness”. Our Nation, our Commonwealth, our Counties and our Municipalities should

and will favor the issuance of bonds for road building, as same is a necessary development, but they will demand an asset for the indebtedness. They can afford to "mortgage" the future if they can leave to posterity a substantial and **permanent** improvement as an offset.

Mr. Clifford Richardson, of national reputation, at all times an enthusiastic exponent of bituminous **wearing surfaces** is apparently taking advantage of every opportunity to strongly advocate a "**Portland Cement Concrete Base.**" From the April, 1912, proceedings of the "American Society of Civil Engineers"—Mr. Richardson speaks at length on this subject and confirms his opinions by quoting from a large number of the most eminent engineers of the world. Mr. Richardson says that there is nothing truer than the old adage that a road, like a house, should have a "dry cellar, a firm foundation, and a tight roof," and proceeds to lay his greatest stress and strongest arguments in the "firm foundation" which, in the road question is the "**Bonded-Base**" made from Portland Cement Concrete.

It is not our purpose to in any way depreciate the generally conceded importance of proper drainage, but we truly believe that much money is frequently expended for drainage, for plain or bituminous macadam, that could be saved if Portland Cement Concrete is used. If your concrete is right the slab will carry the load and water will not harm.

We do not wish to leave the question of "base" without saying something about the all-important question of cost. The cost of real concrete is in no wise prohibitive. A good rich 1—2½—5 concrete can be laid on this

Coast at from 12½ to 20 cents per square yard for every inch of depth.

Under **most favorable** conditions a 6-inch base can be laid at a first cost of probably 75c per square yard or 8 1-3c per square foot, while a 4-inch base could be laid under similar conditions at an actual cost of possibly 60c per square yard, or 6 2-3c per square foot.

Under conditions less favorable, where material, water and labor are high, this first cost should not run above \$1.20 per square yard, or 13½c per square foot for a 6-in. base; or 90c per square yard, or 10c per square foot for a 4-in. base. This will leave a sufficient amount to put on an ideal wearing surface, whether same be bituminous concrete, sheet asphalt, a carpeting coat of bituminated aggregates, or a richer wearing surface of concrete, and still come within the limit of 12 to 15 cents per square foot, or \$1.08 to \$1.35 per square yard, which Mr. Morton said, at the Santa Barbara meeting, would fill a long-felt want, and would be practically all that was to be desired.

To those engineers who have to contend with extremely high priced aggregates, we would like to say,—you can reduce your aggregates to the minimum by binding them together with Portland Cement. In some remote and extreme conditions 6 inches of good concrete, which in itself would make a thoroughly practical road, can be put down for an outlay approximating the cost of 10 inches of water-bound macadam.

If further argument were necessary to convince anyone of the logic of our claims, we would refer them to the Concrete Base that was laid in San Bernardino County twenty-three

years ago. The concrete pavements laid in Washington City, Bellefontaine, Ohio, Chicago, Ill., Grand Rapids, Mich., Richmond, Ind., Montebello, Wash., Denver, Colo., Toronto, Canada, Victoria, B. C., and several score of other cities during the past ten to twenty-five years; or we might refer back to the historical concrete roadways built by Appius Claudius and contemporaneous patriots of ancient days.

Highway Commission of California will adopt concrete for all of its important arteries.

The Highway Commissioners of the State of Ohio have adopted the concrete Standard; New York has practically done the same, as over four-fifths of the roads now under contract and letting, provide for concrete base. We understand that Col. du Pont purposes using concrete only as his base for the magnificent road which



DOLARWAY ON CONCRETE IN ANN ARBOR, MICHIGAN

The Appian Way and the Pyramids of Egypt are monuments to the everlasting durability of Portland Cement Concrete.

The growth in popularity of Portland Cement Concrete for road making seems to be keeping pace with the necessity which heavier traffic is creating. The Commissioners of Wayne County, Michigan, have set a pace that could be advantageously followed. We believe that the State

he is proposing to build in Delaware. Some of our neighboring States are aggressively at work laying concrete roads, notably Ada County, Idaho, and Pierce, Lewis, Skagit and Whatcom Counties, Washington.

Considerable progress is being made in determining and proving the most satisfactory and economic wearing surfaces. There are still isolated cases where basalt blocks seem to be necessary and many places where vitrified

brick and creosoted wood blocks are found to be economical and advisable. Sheet asphalt is a prime favorite in numerous instances, while the "Bituminous Concrete" from one to two inches, and the paint coat of bitumen and granite chips, or torpedo sand, are probably attracting the greatest attention.

Plain concrete where properly laid and treated is slowly and surely gaining in favor, and is in use in more than a hundred cities and towns of importance in the United States and Canada.

Space will not permit of our attempting to go into details or attempt to give specifications for these various "treatments," but we will be more than pleased to supply any of your readers with detailed plans and specifications, without cost, of any of the types above mentioned. We have in our files authorized specifications of practically all of the recognized successful pave-

ments that have been laid in the United States or Canada where Portland Cement Concrete is an integral part.

First cost, while vitally important, is not the **last word** in good road work. Economy of upkeep and maintenance are real factors that must be reckoned with, as this will run on and on after the roadways are gone and after the bonds have matured and have been paid or renewed.

The permanent upkeep and repair expense of roads of the above type are materially less than you are accustomed to with macadam or gravel roads. The constant attention, including the unpleasant sprinkling expense is done away with. Even with the heavy traffic that modern usage gives, we believe that properly built, roads of several of the above types can be permanently maintained at a cost of \$100.00 per mile per year.



COMPETITION, REGULATION, OR MUNICIPAL OWNERSHIP

By C. H. McNary, formerly Assistant Engineer of Los Angeles Edison Co.; Electrical Engineer of Folsom Development Co. of California, and Vice-President and General Manager of Lewiston Clarkeston Co. of Washington.

Sooner or later every growing city of any size must face the problem of taking care of its public utilities. In most cities this has already become a very pressing problem. In some states which have public service commissions the cities have no choice in the matter. In California it is optional with the cities whether they come under the operation of this law or retain their independence in dealing with the problem.

At the present time when all questions of importance are being more and more put to the public vote it is very important that the voter be fully and truthfully informed in order that he may intelligently pass on them.

The subject of properly dealing with the public utilities is of such great importance to the community that too much care and thought cannot be given to the subject. Whenever this sub-

ject is brought up the advocates of competition, municipal ownership and regulation, either by the council or by the commission, whether from selfish motives or from a true interest in the community, each come forward with arguments to support their views.

Regardless of the position which is taken by the community in dealing with this problem there are certain essential facts which must not be lost sight of. No community can be satisfactorily served by a privately owned or a municipal plant that is not financially successful, and by successful we mean both in earning capacity and in the ability to provide new funds for necessary improvements and extensions. Any utility using the streets and roads for its transmission lines, pipe lines or track is, in a way, in partnership with the people. Self interest requires that we allow the public utility to be successful. It is not the function of the government to ruin any corporate enterprise, rather it is to the good of all that it should live and prosper. This is true of manufacturing and mercantile enterprises, but it is no less true of public service corporations, although many people forget and ignore the fact.

Competition

The old saying, "Competition is the life of trade," may have applied when it was first written. But today we have found, that in some things at least, competition works a hardship not only with the producer but with the consumer.

We are not going to try to defend the means by which many of our large corporations were brought about. That would be impossible. We do hope, however, that by general enlightenment to prevent a repetition

in the future of what has taken place in the past. But who is there who believes that the people could be better served by a number of small railroads, say each one operating in a single state, rather than by one trans-continental line operating straight through? Or who would consider that a number of small telegraph companies with frequent relays each under independent management, would give better or cheaper service than one company.

Here are the usual and inevitable trend of events whenever competition is allowed or invited between public service corporations whether they are railroad, gas, electric light, telephone or water. Sometimes it takes longer, sometimes shorter lengths of time, but the final results are the same.

The effects are:

First—Duplication of plants and equipment, thus doubling the investment on which the public must sooner or later pay interest.

Second—Doubling the amount of digging out of streets for connections with the consequent delay of traffic and general inconvenience. Customers will switch from one company to the other as first one and then the other make small concessions. There is one city where nearly every large building has connections with three independent underground systems.

Third—Lowering of rates for the purpose of getting new or retaining old business.

Fourth—An increase in the number of solicitors for the old company with the consequent increase of expense.

Fifth—Rates are continually decreased until the income becomes less than the cost of production.

Sixth—Then follows inefficiency of sufficient income.

Seventh—Impossible to raise funds for necessary extensions as capital is not anxious to buy an interest in a fight.

The final effects:

First—Consolidation, secret combination or division of the field enforced by financial exhaustion.

Second—Raising of the rates to a permanently higher basis due to increased capital and duplicate institutions, also to make up for the loss during the period of active competition.

There is always a question, when a second company applies for a franchise in a field already occupied by another company, whether the second company is acting in good faith or whether it is merely playing a game to be bought out. It has been said that plants are not built to operate, but as a medium of exchange. And this is possible only because the public allows and even invites competition.

We have conditions today in a number of cities where companies have been formed, not to give service to the people but to force the older company to buy them out. And when such sales are made the price paid bears no relation to physical value or earning capacity, present or prospective but it is a so-called nuisance value which is way in excess of other value. It is one of which is useless that the public must pay interest. We must bear in mind that in a healthy business nothing comes out of the business that the customer does not put into it.

The evils of competition are so great that a number of states having public service commissions have abandoned competition entirely as a means

of protecting the public against the abuses of the corporation, and have adopted the principal of qualified monopoly regulated by public control.

In April, 1912, the New York commission refused permission to the Oswego River Power Company to furnish current in the City of Fulton, N. Y., the City of Fulton being satisfactorily served by the Fulton Light and Power Company.

In January, 1912, the Kansas commission refused an application for a certificate of permission to establish an electric light plant at Parsons, Kansas, to F. E. Workman, Parsons Railway Light Company already were giving satisfactory service.

In July, 1911, the New Jersey commission refused to approve a franchise granted to a new gas company to operate in Shrewsbury, N. J., because the field was already being satisfactorily served.

There is another feature of competition which should not be lost sight of. If at any time the city should wish to operate its own plant there will be two plants to take over instead of one, thus causing a larger expenditure on the part of the city.

Municipal Ownership

Every city looks forward to the time when it will own its own utilities. Many people believe that this will relieve them of all the abuses, real or imaginary, which they now suffer at the hands of public service companies. Theoretically this is an ideal condition. But have we reached that stage in our development where this is practical?

If all our public offices were always filled by men moved by a spirit of public good and we could eliminate

entirely petty politics and the spoils of office one might be able to put more faith in this solution. Then we have the records of many cities who have tried municipal ownership and failed. Others are trying the experiment today and are being watched very closely by interested observers to see what the result will be.

There are some things in our principles of government which do not tend to success in the management of utilities. Where can you find a private company which changes some of its directors every year and all of them every few years? Still our cities do this with all their important officers. And those politicians who are able to hold their positions for a number of terms must devote as much time and attention to holding their positions as they do to the duties of their office. While with a private company the way for a man to hold his job is to efficiently do his duty and thus make good with the man above him and not by playing to the public.

With a municipal plant there is always the chance and probability that it will be operated for political ends and to gain popularity with the public. With these objects in view often rates are fixed so low that nothing is left for depreciation. And as time goes on the community finds itself with a run-down plant and no reserve fund for improvements. The whole community must be taxed to replace a property which may be supplying only a small part of the people. Or the plant may be turned over to a private company for practically nothing.

When a municipally owned plant pays no taxes, taxes on other property must be higher and the individual whose tax is thus increased, and who does

not get the benefit of the plant is unjustly taxed. Every utility, whether private or municipal, should stand on its own feet. Such rates should be charged for the service rendered as will provide an income sufficient to take care of bond, interest and sinking fund, taxes, depreciation, operating expenses and profit. When a municipally owned plant does not provide for these things and the people have to be taxed to make up a deficit, such a plant becomes a form of charity for those using it.

In a municipal plant there is usually not the same incentive to a man to make an effort for promotion, as promotions are made usually for reasons other than efficiency. Again in a municipal plant there is not the same incentive for growth and increase in business as with a private plant where each monthly and yearly report is eagerly scrutinized and compared with preceding ones by eager directors.

Still in spite of the many failures in municipal ownership and the many drawbacks, we are all looking forward to the time when we feel we can lend our influence to this solution of the problem. And we watch with keen interest every venturesome municipality that makes the experiment.

Regulation

Whenever we speak of regulation one naturally thinks of regulation by a commission. Although to a certain extent cities have always more or less regulated the public utilities. But it is hardly to be expected that this form of regulation should be satisfactory or successful. The heads of city governments are chosen for other qualifications than their knowledge of public utility problems. When it comes to

the regulation of rates, for instance of gas, water or electricity, the problem is so complicated that it is impossible for the layman to understand it. In fact it is so complicated that the keenest interest is shown by men who have spent their lives serving public service corporations, whenever this subject comes up for discussion. Even the managers and directors of different companies do not agree on this subject. And if these men who have spent their lives in the work do not all have the same understanding how can we expect a city council in the few years they are in office, with their many other duties to qualify to pass on this question?

Naturally we turn to the commission, a body of men composed of specialists, engineers, lawyers and accountants, who can spend all their time on one line of work. The public must not look on commissions as the enemies or friends of the corporations, neither must they consider them as friends or enemies of the people. They are courts of jurisdiction placed in power to deal out justice to both the people and the corporations.

There are many arguments in favor of the private company serving the community, especially when they are under the proper control of a commission.

A private company commands unlimited capital if properly safeguarded and the property is able to make fair returns. There is no necessity for bond elections and consequent expense as in a municipal election. The directors meet and with the endorsement of the commission proceed to raise funds for necessary extensions.

A private company can be operated with greater economy and give supe-

rior service due to the construction of the plant at the lowest cost and because of permanency and stability of the management and employees, while with the municipal plant there is the constant change every few years. Development and extensions are quicker and better under private management.

While the law gives the commission certain jurisdiction over public service corporations it is not their function to step in and manage them. This would be little better than confiscation. A plant well and efficiently managed is entitled to larger returns than one poorly located and poorly managed.

But with the commission to see that the private corporation is capitalized on a fair basis and that its rates are not excessive for the service rendered, the public can be amply protected. In the first part of this article we wrote: "Self interest requires that we allow the public utilities to be successful." Every growing city needs capital as well as people, for no city can grow faster than its means of transportation, water system and other public utilities. If we are going to harrass the investor too far in these forms of securities it will be only a short time before it will reflect back and we will see a lack of development in these lines. Capital, in seeking a field for investment takes account of the spirit of a town just as much as its geographical and topographical location.

The public service companies represent the largest amounts of capital invested in one line of endeavor and under one management. Whenever an industry representing so large an investment, most of which is held outside the state, is not a financial success, it works a hardship on every bus-

iness man and worker in the community.

No public service corporation operating in a community where it is open to competition at any time can give that community the best and cheapest service. Because it must earn all it possibly can with the smallest expenditure of capital before competition comes in. But give it the assurance that it can have the field to itself and it can build permanently and efficiently, knowing that it will be protected for all time against competition.

It will be much more attractive to capital to be assured that there is

safety in its investment and that it will be assured a **reasonable** income for all time rather than a possibility of a **large** income which may be harrassed and attacked at any time. The more secure an investment and the farther it is removed from a speculative nature the smaller are the returns expected. Therefore the interest of the public and justice requires that in dealing with the subject of regulation of public utilities we must not lose sight of the necessity of protecting the investor as well as the public. And one of the first steps in this direction is to prevent unnecessary competition.



PROPOSED PROGRAM OF THE ANNUAL CONVENTION OF THE NATIONAL MUNICIPAL LEAGUE, TO BE HELD AT LOS ANGELES, CALIFORNIA, JULY 8-12, 1912

EXPERT CITY MANAGEMENT: (Annual Address of the President)
Hon. William Dudley Foulke, Richmond, Ind.

SIMPLICITY, PUBLICITY AND EFFICIENCY IN MUNICIPAL AFFAIRS,
Clinton Rogers Woodruff.

COMMISSION GOVERNMENT FOR LARGE CITIES,
Horace E. Deming, Esq., New York City.
Prof. William Bennett Monroe, Assistant Professor of Government, Harvard University.

COMMISSION GOVERNMENT AND CITY PLANNING,
Ernest S. Bradford.

MUNICIPAL FINANCES AND TAXATIONS.
George Burnham, Jr., Philadelphia.
Harvey S. Chase, Boston,
Dr. Frederick A. Cleveland, Washington,
Prof. Carl C. Plehn, University of California.
A. C. Pleydell, Secretary N. Y. Tax Reform Association, N. Y.

EXCESS CONDEMNATION (Report of Committee on)
Robert S. Binkerd, Secretary New York City Club, New York City.

THE NEED OF AN ADEQUATE CIVIL SERVICE LAW,
Elliot H. Goodwin, Secretary National Civil Service Reform League, New York City.

HONESTY PLUS EFFICIENCY,
Meyer Lissner, Esq., Los Angeles.

PACIFIC MUNICIPALITIES

STATE VERSUS MUNICIPAL REGULATION OF PUBLIC UTILITIES,

John N. Eshelman, President Railroad Commission of California,
Lewis R. Works, Los Angeles, former President Board of
Public Utilities, Los Angeles.

STREET RAILWAY FRANCHISES,

Robert Treat Paine, Boston (Report of Committee),
Dr. Delos F. Wilcox, New York City,
J. W. S. Peters, Kansas City.

THE ACTUAL OPERATION OF INITIAL REFERENDUM AND
RECALL IN CALIFORNIA CITIES,

Dr. John R. Haynes, Los Angeles, President Direct Legislation,
League of California.

THE ACTUAL OPERATION OF WOMAN'S SUFFRAGE IN PACIFIC
COAST CITIES,

Mrs. Charles Farwell Edson, Los Angeles, Chairman Organiza-
tion, Political Equality League.

HOME RULE IN CALIFORNIA CITIES,

Chester H. Rowell, Fresno, California, Editor Fresno Repub-
lican.

COUNTY HOME RULE,

Hon. Leslie R. Hewitt, Los Angeles,
Richard S. Childs, New York.
Percy V. Long, San Francisco.

THE BOSSES' DAY IN COURT,

Professor Albert Bushnell Hart, Harvard University.

THE ELIMINATION OF THE PARTY BOSS IN CALIFORNIA
CITIES,

Prof. William Carey Jones, University of California.

SOCIALISM IN MUNICIPALITIES,

Manuel Larkin, Stanford University,
Ira B. Cross, Stanford University.

HOW TO EDUCATE THE PEOPLE TO DEMAND BETTER GOV-
ERNMENT,

THE WORK OF THE LEAGUE OF CALIFORNIA MUNICIPALITIES,

H. A. Mason, San Francisco, Secretary League of California
Municipalities.

COMMERCIAL VALUE OF CITY PLANNING,

AN ADEQUATE HOUSING PROGRAM,

Rev. Dana W. Bartlett, Los Angeles,
John Ihlder, New York.

MUNICIPAL HEALTH PROGRAM .

M. N. Baker, New York.

(With special reference to garbage disposal).

MUNICIPAL HOUSEKEEPING,

Mrs. Caroline Bartlett Crane, Kalamazoo, Mich.

REPORT OF COMMITTEES.

CIVIC EDUCATION (REPORT),

Arthur W. Dunn, Secretary Public Education Ass'n., New York.

PROPOSED CHARTER FOR LOS ANGELES (FRIDAY, JULY 12),

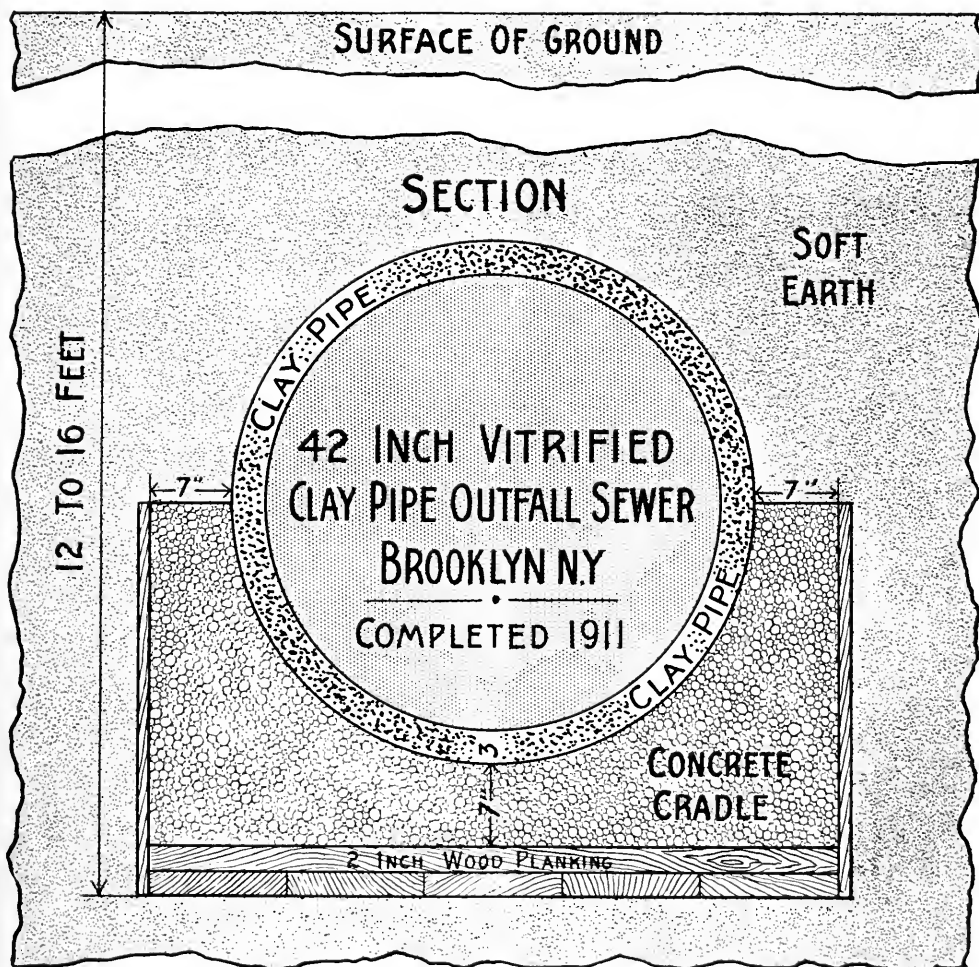
Discussion and criticism of provisions.

EXHIBITS.

PRESIDING OFFICERS,

Hon. Hiram W. Johnson, Sacramento, Governor of California,
 Mrs. Rudolph Blankenburg, Philadelphia,
 Hon. James D. Phelan, San Francisco.

NOTE:—Regular convention rates of one and a third fare for the round trip will be granted on all railroad lines for this convention.



**[GENERAL SECTION OF BROOKLYN'S NEW OUTFALL SEWER,
 BROOKLYN, N. Y.]**

**Largest Vitrified Clay Pipe Sewer in World, Laid Ten to Fifteen Feet Below
 Ground Water Level. Sewer Almost Perfectly Water Tight**

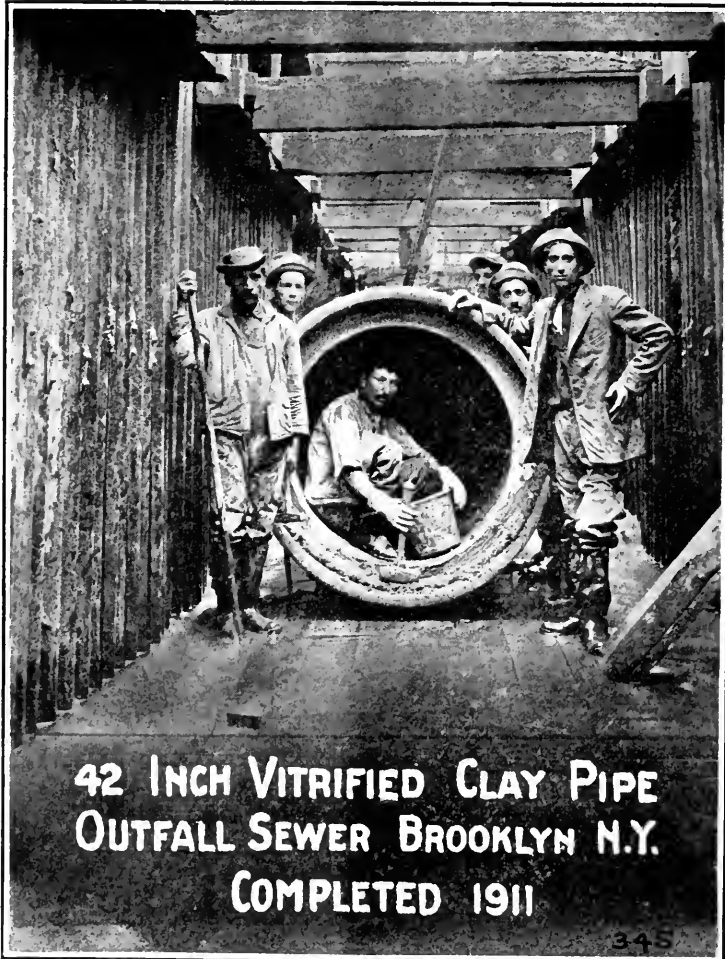
"A piece of sewer construction is nearing completion in Brooklyn, N. Y., which is remarkable, both for the fact that it is believed to be the largest

vitrified pipe sewer ever built, and also because it is being laid with comparative ease in fine sand 10 feet to 15 feet below tide water level. This sewer, which is

about 4000 feet long, serves as the outlet line for a system draining a considerable area of a new part of the city which is rapidly extending out over the meadows adjacent to Jamaica Bay. It ends at a sewage disposal plant which has been in service for about 18 years and is enormously overtaxed and must speedily be replaced with some larger and probably different kind of plant.

The sewer is being laid through salt meadows, a considerable part of which is overflowed by the highest tides, and at few if any points is the land more than three feet higher than this. The depth of the trench ranges from 12 to 16 feet, or about 10 to 13 feet below high

tide. The material excavated has been sand; in some places a very fine running sand, in others a coarse sand mixed with a small amount of fine gravel. On top of this, in the lower levels, is a mass of sod, roots and muck extending to a depth of three to five feet, while on the higher ground the sand is covered with coarse grass deeply rooted. The line lies entirely through unused meadow land, along the line of what will at some day be a street but is now being put to no use, and consequently the final condition of the surface is of little importance, which does away with any necessity for tamping or any objections to cracks caused by caving of banks, etc.

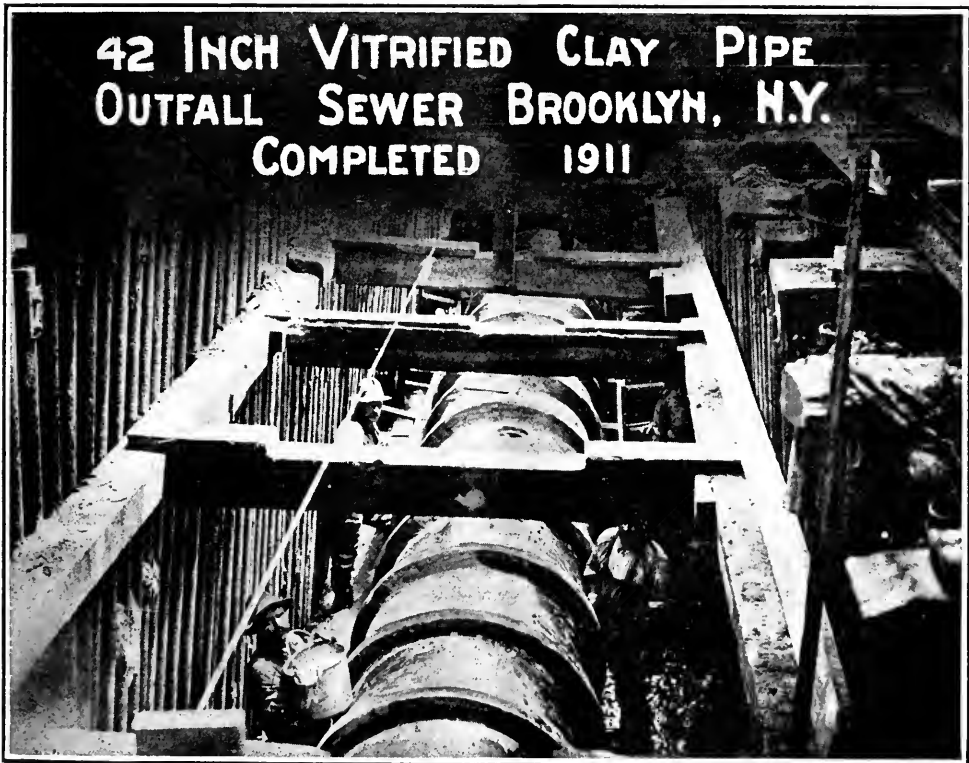


END VIEW BROOKLYN

The sewer is made of 42-inch vitrified clay pipe three inches thick, bedded in concrete up to the horizontal diameter, this concrete having vertical outer sides and resting upon a plank platform, and being seven inches thick under the invert and 14 inches wider than the outside diameter of the pipe barrel. For the purpose of connecting future buildings there are inserted at intervals of 20 feet upright "stand-

ing the weight from crushing the sewer. The remainder of the standpipe is surrounded by a square envelope or chimney of concrete which supports it against dislocation by the back fill. These standpipes are temporarily plugged at the top, and will be provided with a Y-pipe for receiving a connection from each side of the street.

The 42-inch pipe is jointed with



TOP VIEW BROOKLYN

pipes" of 6-inch vitrified pipe which rest on the 42-inch pipe in sockets formed around openings in the top of the pipe constructed for this purpose. At each such standpipe the concrete is carried up in a transverse wall 16 inches wide and the full width of the cradle concrete, surrounding the standpipe and carried up to the level of the bell of the first length of pipe; thus supporting the pipe and prevent-

ing the weight from crushing the sewer. The remainder of the standpipe is surrounded by a square envelope or chimney of concrete which supports it against dislocation by the back fill. These standpipes are temporarily plugged at the top, and will be provided with a Y-pipe for receiving a connection from each side of the street. The 42-inch pipe is jointed with oakum dipped in cement grout and calked solidly into the bell with wooden paddles, following which the bell spaces are filled with a one to one cement mortar applied by hand and well packed into place and beveled on the outer face. After the outer joints have been completed the joints are pointed up from inside of the pipe with similar mortar, completely filling all annular spaces between pipes.

After the excavation has been completed a foundation platform composed of two layers of 2-inch plank is put into place and the pipes lowered onto this and blocked up seven inches from the platform by a block of wood and two wooden wedges facing each other just back of the bell; the proper line and grade being obtained by manipulating the wedges. Meantime the spigot end of the pipe which is being laid is raised by calking in the oakum until the flow lines of the adjacent pipes are flush. After making the joints, vertical side forms are built, resting upon the platform, to retain the concrete cradle, these being braced against the sides of the trench. The concrete is then put into place, both that in the cradle and that in the stand-pipe supports and chimneys.

Owing to the fact that there will al-

ways be several feet of ground water standing above the sewer, and all the sewage passing through it must be both pumped and treated, it seemed most essential that every precaution should be taken to obtain tight work. This was one of the principal reasons for adopting the construction described instead of a concrete sewer, either plain or reinforced, as it was not believed that that could be made sufficiently non-porous. That a tight sewer is being obtained appears certain, as there is practically no seepage whatever into the several thousand feet which has already been laid and back filled"—Municipal Journal.

Note:—In Brooklyn, N. Y., for a number of years past only vitrified clay pipe has been used in the sanitary sewers.

FOR BETTER SEWERAGE CONSTRUCTION

F. C. Davis, C. E.

In most branches of municipal and other construction there has been a great improvement in recent years in the materials and methods used and in minor details looking to greater perfection. Public funds have been appropriated and talent of a high order has been devoted toward working out better methods of sewage treatment, and more recently of disposal of sew-

age by dilution.

The sewer conduit is buried beneath the surface of the street, and generally deeper and more inaccessible than any other sub-surface structure. It is, therefore, a matter of only ordinary economy and common sense to make sure that the materials and methods of construction are such as to obviate any future necessity for repairs due to



30-INCH VITRIFIED CLAY PIPE SANITARY
SEWERS, FORT WORTH, TEXAS

a breaking of the sewer because of weakness, to gradual disintegration of the material or to wearing out of the invert. These practical precautions are as important as designing adequate capacity or securing sufficient, uniform grade to prevent deposits. Because of the difficulty of rectifying errors and because of the great importance to the health and convenience of the citizens of the uninterrupted

paratively cheap materials which are sufficiently serviceable, no conditions justify any great expense for sewer conduits. No one complains against the cost of iron pipe for water mains, which is much more expensive than the cost of the vitrified sewer pipe for removing this same water, through a house sewerage system; but should the presence of a large amount of ground water make it desirable to se-



VITRIFIED CLAY PIPE SANITARY SEWERS, KANSAS CITY, MO.

serviceability of a sewerage system, there is, perhaps no place where experimenting with doubtful materials or methods is more out of place or likely to prove more disastrous.

Unfortunately there seems to be an impression in the minds of many city officials, and even engineers, that, because there are available for sewer conduits for ordinary conditions com-

cure an impervious conduit there is great hesitancy and frequently absolute refusal to spend a few cents a foot additional in securing the safest obtainable conduit material, although there is no question that the failure to do so threatens the pollution of soil and ground water with sewage and adds greatly to the expense required for treating sewage.



30-INCH VITRIFIED CLAY PIPE SANITARY SEWERS, DENVER, COLORADO

Modern science has made great progress in improving upon the older methods of sewage disposal, garbage disposal and other kindred problems. The questions connected with the sewer conduit are not as pressing, perhaps, but such as they are they are of even greater importance and should receive equally wise and careful at-

tention. In no municipal structure is it truer that "the best is none too good". In this connection may be stated that it has been proven beyond the question of doubt, that vitrified salt glazed sewer pipe has stood the test of time, and it is the engineer's guarantee-bond that the sewer he has specified is **permanent**—and it is the insurance of perfect sewerage.

UNGLAZED CLAY PIPE FOR SEWERS

Certain manufacturers of clay sewer pipe have recently suggested the use of partially vitrified unglazed pipe, the best quality of such as is used for drains, for small sized sewers in place of the salt glazed pipe commonly used. This they do not advocate, as we be-

lieve they consider it a backward step; but on account of the lessened expense of burning and the less number of pipes which would be rejected than when pipe are burned to more complete vitrification, the manufacturers would be able to sell it at 10 to 20 per cent less than the salt glazed pipe.



LOUISVILLE, KY., SEWERS OUTFALL

The proposition was submitted by them to a number of city engineers and consulting municipal engineers throughout the country, and fully 90 per cent of these stated that they would not consider using the cheaper pipe for sewers. Most of them gave as the reason that the unglazed and incompletely vitrified pipe would be more likely to be injured by frost and worn by scour of the sewage than the

burned unglazed pipe is fully as hard, as strong and as impervious as cement pipe, that by selling it 10 to 20 per cent cheaper than standard pipe it would be as cheap or cheaper than cement pipe, and hence should be accepted in place of it even where price is the principal inducement.

We hope that some competent authority recognized as perfectly unbiased, such as the laboratory of an

30 INCH VITRIFIED CLAY PIPE FOR CULVERTS AT TULSA, OKLA. INSTALLED 1911



SEWERS AT TUSLA, OKLAHOMA

more pervious and harder, vitrified pipe. How many of these merely assumed that the cheaper pipe would possess these disadvantages, and how many of them based their reasons on actual knowledge we are unable to say. We imagine that with most of them the former was the case.

In making this proposition the pipe manufacturers claim that the partially

engineering school, will investigate this question thoroughly, making comprehensive tests and study of actual experiences with cement pipe, vitrified salt glazed pipe and the proposed unglazed pipe. There are few questions connected with municipal work more in need of definite determination at the present time."—Municipal Journal.



THE FOURTH OF JULY

Independence Day is coming; day of powder-poisoning and lockjaw; day of hospitals and ambulances; day of mutilation and fire and death. If

there is anything that is sane in the American people it is the growing revolt against our insane manner of celebrating the Fourth of July. It might

be called "Incendiaries' Day"; for on that day the fire fiend runs riot. No man having any public responsibility but dreads it. No fire department gets through the day, and the nights on both sides of it, without exhaustion.

Never an "Independence" Day but scores of human beings are made dependent for life. Life and limb are jeopardized by explosives, while upon the child, who in his innocent love of noise and objective demonstration responds to our present absurd kind of celebration, falls the heavy hand of disaster.

And for what! Nobody stops to inquire. Nobody any longer cares. We have gotten wholly away from the educational significance of "Independence" Day, and lost ourselves in an orgy of fire and noise.

It is, perhaps, too much to expect any sudden return to sanity; but some effort at least may be made by cities and towns toward leading their people into more moderate and more intelligent forms of celebration. If explosives must be used the authorities can limit their use to the public parks during certain hours of the day, where the folly-hunters may kill and maim themselves and each other to heart's content, without injuring other people, or destroying property by fire. The firing off of explosives among the closely built shingle-roofed frame houses, which compose the greater part of our cities, is wholly in accord with the reckless spirit of Americans regarding fire.

If before every Fourth of July all cities and towns were given a thorough cleaning of rubbish, and all use of explosives, then restricted as to time and place, the police and public wardens might have at least a fighting

chance to minimize the disastrous results of our public folly during the years it may require to inspire in our people a desire for a rational kind of celebration. And such a desire must be inspired. It is the duty of every city to arrange for its people suitable amusements or exercises definitely calculated to educate them in a rational observance of this historic holiday. Habits of folly can be most easily eliminated by a substitution of something better. The things a city can do to interest its citizens in a sane and wholesome celebration are unlimited, and the municipalities, which, in the past two years have taken steps in this direction, are already receiving national praise for their wisdom and their high sense of civic responsibility.

Independence Day of 1912 is coming. To what city, what town, what mother or father is it this year to bring suffering or sorrow the day after?

Statistics of Independence Day in America

(Compiled by Journal of the American Medical Association).

	Dead	Wounded	Total
1903	466	3,983	4,449
1904	183	3,986	4,169
1905	182	4,994	5,176
1906	158	5,308	5,466
1907	164	4,249	4,413
1908	163	5,460	5,623
1909	215	5,092	5,307
1910	131	2,792	2,923
1911	57	1,546	1,603
	1,719	37,410	39,129

In the nine years a total of 39,129 people—the equivalent of over thirty-nine regiments—were killed or injured in the celebration of the Fourth of July.

THIS YEAR, 1912, HOW MANY ARE TO BE SLAUGHTERED?

FIREWORKS ORDINANCE

Suggested by the National Fire Protection Association

Prohibiting the discharge or firing of fireworks and other pyrotechnic display and to limit their storage.

Be it ordained by of the City of as follows:

SECTION No. 1. The discharge, firing use of all firecrackers, rockets, torpedoes, Roman candles, or other fireworks or substances designed and intended for pyrotechnic display, and of all pistols, canes, cannons, or other appliances, using blank cartridges or caps containing chlorate of potash mixture, is hereby prohibited. Provided that the may order the public display of fireworks by properly qualified individuals under the direct supervision of experts in the handling of fireworks. Provided also that such display or displays shall be of such a character and so located, discharged or fired as, in the opinion of the Chief of the Fire Department, shall not be hazardous to surrounding property or endanger any person or persons.

SECTION No. 2. The sale of fireworks at retail is prohibited.

SECTION No. 3. The storage or sale of fireworks at wholesale is prohibited, except by permit from the issued for a period of one year. Application for permit must be filed with the Chief of the Fire Department at least 30 days previous to the issuing of the permit and must give detailed description of the proposed care and storage of said materials and of the structural conditions and occupancies of the building.

SECTION No. 4. Permits may be issued only after an inspection of the premises by the Chief of the Fire Department or his authorized agent, who shall file with the Mayor and Fire Department a certificate of approval or his disapproval and reasons therefor.

SECTION No 5. Any person, firm or corporation violating any of the provisions of this ordinance as regards the storage and sale of fireworks shall be deemed guilty of a misdemeanor and be fined not less than Ten (\$10.00) Dollars nor more than Twenty-five (\$25.00) Dollars for each day's neglect of compliance. Provided also that violation of other sections of this ordinance shall be considered a misdemeanor punishable by a fine not exceeding Ten (\$10.00) Dollars.

The Chief of the Fire Department may, at his discretion, remove or have removed, at the owner's expense, all stocks of fireworks or other combustibles exposed for sale, or held in stock in violation of this ordinance.

SECTION No. 6. The Chief of the Fire Department shall direct such fire appliances as in his judgment may be necessary for the premises, and he shall see that two or more persons are instructed in their use, and as to the best means of getting fire alarms to the Fire Department.

SECTION No. 7. All ordinances and parts of ordinances inconsistent herewith are hereby repealed.

SECTION No. 8. This ordinance shall take effect and be in force from and after its passage and legal publication.

Here is the result of one year's operation of such law in Washington, D. C.—A striking contrast.

Number of persons treated at Washington, D. C., local hospitals for injuries from explosives:

HOSPITAL	JULY 4, 1908	JULY 4, 1909
	When fireworks were allowed.	When fireworks were prohibited
Emergency	25	00
Casualty	6	00
Freedmen's	5	00
Georgetown	10	00
Garfield	4	00
Homeopathic	52	00
Children's	2	00
Totals	104	00



Q When a man feels the necessity of being in two places at the same time he goes to the nearest telephone and sends his voice. It is not exactly the same thing but when a man talks hundreds of miles in opposite directions from the same Bell Telephone, it is about as good. In the daily use of the telephone a man travels all over town by wire in a few minutes. It is just as easy to travel all over the state and other states by means of the universal Long Distance Service of the Bell System.



The Pacific Telephone & Tel. Co.

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QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry.

Q. Please advise if board of trustees may fix two water rates in one city for companies operating under different conditions?

Ans. Yes, a city may fix different water rates for different companies, or different water rates for different sections or districts in the same city. As a matter of fact they have three different water rates in Pasadena, one company paying a minimum rate of \$.75, another \$.90 and the remaining company \$1.00. This right is sustained in the case of *Souther vs. City of Gloucester*, 187 Mass. 552; also, in the

case of *Chicago vs. Rogers Park Water Co.*, 214 Ill. 212. The principle has also been sustained by the Supreme Court of California where it upheld the right of the City of Los Angeles to fix one telephone rate for the Home Company and another for the Sunset Company.

Q. Can you give us any information relative to a recent decision of the United States Supreme Court, to the effect that a water company cannot shut off the water to collect a bill or rate? (I noted under "Current Events" in the *Youths' Compan-*

ion, that such a decision had been handed down).

Also, is there any decision relating to making charges for water connections, i. e., from main to curb line? (I have been informed that there was, and that such charges could not be made, but I have not been able to find any authority for same).

Ans. The report of the decision of the Supreme Court which you refer to, as published in the newspapers, was entirely erroneous. The decision referred to the rights of a water company in Idaho to collect charges for water connections, and the court decided that such charges could not be made in this particular case by reason of the fact that the company had no franchise. As a general proposition the company can, of course, shut off the water to enforce collection of the bill; they also have the right to make a charge for house con-

nections, and such is the universal practice in this state.

Q. Can an ordinance be legally passed on night of its introduction by the board of trustees of a city of the sixth class? If so, does it go into effect immediately upon publication?

Ans. No ordinance can be legally passed within five days after its introduction, in a city of the sixth class.

Q. Will you kindly advise us as to whether any decision has been rendered as yet regarding the commission the treasurer is to receive. That is, is he entitled to 1% of both incoming and outgoing moneys or just 1% of either?

Ans. Replying to your inquiry of April 17th, will say that recently there were decisions both ways on this question, Superior Judge Densmore holding that the treasurer of Corona should get one per cent of all money coming and

SMITH, EMERY & COMPANY

INSPECTING AND TESTING ENGINEERS
AND CHEMISTS

651 HOWARD STREET
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245 SO. LOS ANGELES STREET
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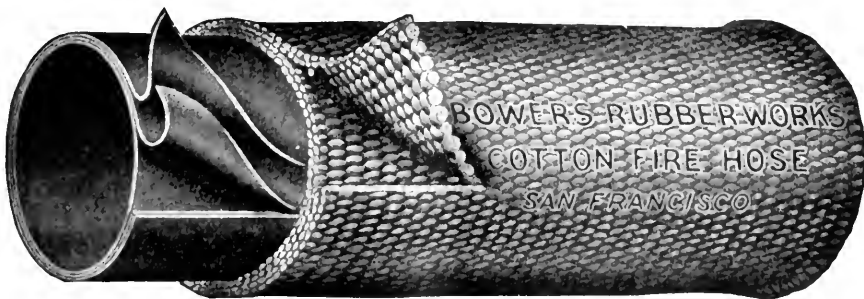
BIRMINGHAM
MONTREAL

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GLASGOW

"VICTOR"

"RELIANCE"

"GUARDIAN"



Made in California

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Mention "Pacific Municipalities" when writing for catalogs.

going, while Superior Judge Murphey held that Treasurer Lehmer of Sierra Madre was entitled to one per cent one way only.

Q. In our recent city election, the three candidates for trustee who received the highest number of votes were declared elected. Later, it was found that one of them could not qualify because he had not resided in the city one year. In such case should the candidate receiving the next higher number of votes be declared elected, or what should be done in the matter?

ANS. In such case the law provides that the election is invalid in so far as it relates to the party in question, and the proper course for the trustees to pursue, would be to pass a resolution declaring his election invalid because of his inability to qualify. The result would be that a vacancy would exist on the board, which should then be filled by the remaining four members, if possible, otherwise, as provided by the general laws in case they cannot agree.

The candidate receiving the next higher number of votes has no claim to the office whatsoever. The points here involved were decided in the following cases:

People vs. Rogers, 118 Cal. 393.

Campbell vs. Free, 7 Appellate Decisions, 151.

Campbell vs. Board of Supervisors, 7 Appellate Decisions, 155.

Q. Does the recent legislation exempting \$1000 of the taxable property of old soldiers who are worth not more than \$5000 apply to all taxes, that is, municipal as well as state? Also, is the exemption additional to the \$100 exemption of personal property? Should the exemption apply to the partnership interest of an old soldier when he owns such an interest in a mercantile business?

ANS. "Yes," we say to the first two questions, but we believe "No" is the proper answer to the third one, as the tax in such case would be levied against

the firm and no cognizance taken of the various partnership interests; we think it would be construed that the exemption was intended to apply only to that property of which the old soldier was the sole owner.

Q. Kindly inform me if Section 886 of the Municipal Corporation Bill renders it impossible for the city to employ a Street Superintendent and pay him for the use of a team and wagon, that is, such Superintendent furnishing a team and wagon to the city, and at the same time being an officer of the city?

ANS. We hardly think it was the intent of Sec. 886 to prohibit a Street Superintendent furnishing a team and wagons to the city and receiving compensation therefor. We are inclined to believe it was intended to prohibit an officer being interested in any work or supplies outside of that which is incidental and requisite to the performance of his official duties; for instance, a Street Superintendent could not be interested in a contract for the erection of a municipal building, or in furnishing supplies for the fire department.

A very strict interpretation of this section would be unreasonable because, as a matter of fact, every officer is interested in doing work for the city, and if said section were literally construed it might be held that an attorney could not furnish any stationery or a clerk procure any books for the town and be compensated therefor.

We believe, moreover, that the prohibition was intended not so much for the administrative officers, but more particularly for the trustees as they would be called upon in such cases to prove their own bills.

Q. Is it necessary in all cases for the marshal, when he deputizes a man, to have his appointment sanctioned by the Board? Can he appoint whomsoever he wishes

provided, of course, the man is competent to act in this capacity ?

Ans. Not unless the appointment is to be of a permanent nature. Section 880 of the Municipal Corporations Bill, which governs cities of the 6th class, says that "every citizen shall also lend his aid, when required, for the arrest of offenders and the maintenance of public order". Further on in the same section it says: "He may appoint, subject to the approval of the board of trustees, one or more deputies, etc.", but this refers to permanent appointments. In case of trouble and the marshal needs help in a hurry, he has the right to deputize any citizen to assist him.



MORE HIGHWAYS FOR LOS ANGELES COUNTY

The Board of Supervisors have set May 6th as the date for ordering the work on Los Angeles County Road Improvement District No. 7 at Manhattan Beach. This work consists of pavement of four-inch hydraulic base and two-inch bitulithic surface, and eight-foot cement sidewalks. The length of this work will be about six miles. C. R. Sumner of the firm of Cook-Sumner Company of Los Angeles, is the Engineer of the work.



UNIFORMED SQUAD CLEANS CITY

Dallas, Tex.—Following out plans made by Street Commissioner Lee and

Street Superintendent Ben Sira, street sweepers of the city of Dallas have made a changed appearance in the few days since the first of the month, going about their work in neat khaki uniforms of jumper and overalls with a helmet to match. The regular men are all being provided with these suits, and it is planned to get suits also for the extra men as rapidly as possible. Street Superintendent Sira said that the street cleaning force will make special efforts to be prepared for the coming of the advertising convention, now little more than two weeks off. He says that, although the downtown streets are now kept pretty clean, extra men will be put on during the convention and the streets will be kept as spotless and dustless as possible. Also upon the days when parades will be made extra men will be at work upon the streets over which visitors will pass, and those, too, will be kept spick and span. Since the water supply has been plentiful Superintendent Sira has had men at work every other night flushing off the paved streets and washing out gutters and storm sewers.—Municipal Journal.



GARBAGE REMOVAL REFORMS

New York, N. Y.—The Committee on Streets of the Woman's Municipal League has sent to the Board of Estimate suggestions for improving the method of collecting ashes and garbage. The committee wants the city to plan a standard receptacle capable of being tightly sealed for all ashes

and garbage, and require each owner to have duplicates of these receptacles. The city should have automobiles to collect the receptacles, should empty and wash them, and return them to their owners, the committee thinks. In support of the suggestions the committee says: "The cost to the city would in fact be less. The men would not be called upon to empty cans into wagons and then wagons into scows. The sealed receptacles could be transported direct to incinerating or destructor plants, either by automobile trucks, subway, surface cars, or, ultimately, perhaps, through subway tubes of size adapted to the receptacles. We have stopped surface drainage in our cities; is it not about time we stopped open collection of garbage and ashes? We are concerned, of course, with the side of the question involving the city's health. Sealed re-

ceptacles would mean less dirty streets, less dirty gowns, and less germs floating around. We are concerned also with the cleanliness of the city. Every time ashes or garbage is collected by emptying open receptacles into open wagons we duplicate the work of cleaning the streets. We think a little 'scientific management' applied to the collection and distribution of ashes and garbage would result in a more efficient street cleaning system. Even if the entire plant here suggested may not be immediately workable, certainly substitution of automobile vehicles for our present toy carts is something to be thought of immediately. We think the needs of the Street Cleaning Department should be treated in the same progressive way as the city is treating the needs of the Fire Department."—Municipal Journal.



WHAT MAKES IRON RUST?

A Little Practical Chemistry for Busy People

We live in the Age of Iron. If gold and silver should disappear from the earth, we could find efficient substitutes, and within a short time would wonder at the importance which had been ascribed to the rare metals; but if iron should cease to exist, railroads and steamships, dynamos and motors, and by far the greater part of all tools and machinery would vanish, beyond the possibility of replacement; and man's situation would become restricted and poverty-ridden to an ex-

tent unknown since the Bronze Age.

The amount of wealth annually destroyed by the rusting of iron and steel is enormous. Structures ranging from wire fencing to suspension bridges begin to deteriorate as soon as put into use; and for every iron construction which is exposed to the action of the elements the time until total replacement shall be necessary is measured almost wholly by its ability to resist corrosion. The problem of the cause and possible preven-

tion of rust is therefore of the very first importance.

In the first place, neither iron nor any other so-called solid substance is as solid as it seems. The marvels immediately under our hands are greater than the inventions of all the tellers of magical tales. The axe that cleaves the hardest wood and the wall of stone that holds the desperate criminal, are, in the last analysis, clouds of whirling mites, held in nearness to each other by a force somewhat akin to that which keeps the earth and her sister planets in their orbits, and (in their field of the infinitely little) as free as they.

The force which holds together these tiny, vibrating bodies is chemical affinity, or considering the larger aggregations of particles, we speak of cohesion. Atoms of gold, and of a few other substances, have such a strong affinity for others of their own kind that only the most powerful solvents can break up their association and induce them to enter into new combinations. That is to say, there are hardly any substances to be found for which these atoms have as great an affinity as they have for each other. These forms of matter are therefore usually found in an **elemental** state in nature,—i. e., not combined with other elements into chemical compounds. On the other hand, there are elements whose chemical cohesion is slight, but which have so great an affinity for many other things that, in a natural state, they are almost never free. Iron occupies an intermediate position in this respect, being however, when in a pure state, more like gold and platinum than like the freely combining elements at the other end of the scale.

Iron rust is a compound of iron, hydrogen and oxygen, in certain definite proportions. Its formation is a kind of chemical action, similar to the dissolving of metals in acid or the burning of wood in air. All of these instances illustrate the triumph by active and eager elements over old affinities, and the formation of new unions.

Now certain things are found to be highly favorable to chemical action. The most important of these are heat and electricity. Soap is more effective when used with hot water than with cold, for the reason that heat favors the chemical union of its alkali with the organic impurities; reactions are brought about through the agency of the electric spark between substances that are otherwise indifferent to each other's presence; and the copper or zinc of an electric battery is consumed many times as fast when the wire connection is made than when the battery is inactive. The results of many of the elaborate and difficult explanations of electro-chemistry may be summed up in the statement that chemical action and electricity stand in the same relation to each other as fire and heat, in that each tends strongly to produce and to increase the other. Perhaps after all they are merely different aspects of the same primeval force.

The most familiar example of mutually accelerated chemical and electric action is that afforded by the electric battery. Two metals or other substances, one of which has a higher potential (normal electric energy) than the other, are placed in a jar containing a solution of some acid, alkali or salt, some elements of which have a chemical affinity for the material of

one of the plates. When the upper ends are joined by a wire conductor, electricity begins at once to travel through the wire from one plate to the other, down the second plate and through the liquid to the first, forming what is called a circuit. It will now be observed that chemical action has set in, and that the plate from which the current flows is being dissolved. Chemical changes are also proceeding in the liquid; some compounds under these conditions undergoing dissassociation into their original elements. The metal or basic plates are known as **electrodes**, the liquid conductor as an electrolyte, and the resulting chemical changes have been given the name of electrolysis.

Iron and steel, as ordinarily made, are comparatively pure products. Even the cheap and rapid Bessemer process gives a steel which will analyze better than 99½. The impurities which make up the remaining fraction undoubtedly tend to invite corrosion by whatever degree of separation of the iron particles their presence involves; but they exercise a far more serious influence through electrolysis.

The principal impurities to be found in iron and steel are carbon, manganese, sulphur, silicon, phosphorus and copper. Some of these bear the same relations to iron as the copper bears to the zinc in the electric battery; and when the iron is brought in contact with water which contains (as water usually does) a small amount of acids or salts in solution, the result is the setting up of a multitude of tiny batteries, and the playing back and forth of thousands of electric currents. This action loosens the chemical cohesion of the iron particles, and oxygen and hydrogen seize the

opportunity to unite with them and form rust.

From the foregoing it would naturally follow that an impure iron or steel would rust rapidly, the corrosion forming pits corresponding to the location of impurities, and that an iron of a high degree of purity would rust very slowly, such action as occurred being entirely on the surface, where the iron particles come in direct contact with the corroding elements. Just this is found by experiment to be the case. Herein is the explanation of the splendid durability of the iron of our forefathers,—patiently and laboriously made in the Catalan forge, before the development of the Bessemer process. Analysis shows it to be of a high degree of purity, while the rapidly corroding steel of the later nineteenth century contains high percentages of carbon, manganese and sulphur. During the past ten years, however, processes have been developed, retaining the essential characteristics of the old-time methods, which result in a wrought iron excelling in purity even the product of a hundred years ago; and all indications thus far point to the conclusion that this iron is rust-resisting to a point never before attained.

Whether corrosion could be entirely eliminated by the production of an absolutely pure iron is an interesting question on which authorities still differ. The experiments conducted by Messrs. Bertram Lambert and J. Campbell Thomson, at Oxford, England, showed that perfectly pure iron, water and oxygen would remain in contact for months without rusting; and many skilled investigators in this country have arrived at similar conclusions. The production of absolutely pure iron, in commercial quantities, may be one of the industrial triumphs of the future.

B. M. MARSHALL.

What the Cities are Doing

Lodi had a town cleaning day on April 18.

Bishop is after additional fire apparatus.

Healdsburg is extending its water system.

Stockton is doing considerable street paving.

Marysville is doing considerable street paving.

Redwood City is extending its water system.

Redding is considering an anti-mosquito campaign.

San Bernardino fire boys want an auto fire truck.

Salinas has made a slight reduction in electric and gas rates.

Selma is considering the purchase of a street sweeping machine.

Oakland is working on the extension of its high pressure system.

Tracy is agitating for house numbers and the placing of street signs.

Modesto is about to spend \$82,500 on the improvement of its water system.

Alameda has voted \$160,000 for enlarging and improving its lighting plant.

Turlock will spend \$25,000 on the extension of its water and sewer systems.

Riverside is considering the purchase of a motor car for its police department.

Palo Alto has voted \$67,000 bonds for improving its municipal lighting plant.

Fowler is considering the proposition of bonding the city for \$28,000 for a sewer system.

Hermosa Beach voted pier bonds to the amount of \$60,000 on May 14. The bonds carried by 4 to 1.

Lakeport recently voted "dry", but an election contest has been commenced by the "wets".

Redlands' engineer has recommended a \$600,000 bond issue for acquiring a municipal water plant.

Berkeley has an anti-fly campaign on and the police department is rendering valuable assistance.

Dunsmuir has raised the saloon license from \$250 to \$350 per year, and reduced the number from nine to seven.

Anaheim electors recently voted down the proposition to pay each of the trustees a salary of \$10.00 per month.

Petaluma will vote on June 4 on the question of issuing \$125,000 bonds for the building of a new high school.

Santa Clara has voted \$60,000 for a new grammar school and \$5,500 for a combination chemical and fire-hose wagon.

Fairfield recently used the referendum on an ordinance granting a franchise to a railroad company, but the Superior Court set aside the referendum election on account of irregularities.

San Rafael citizens recently voted down propositions to issue \$97,000 bonds for street improvements, \$25,000 for a water park and baths, \$15,000 for an electric light system and \$15,000 for a street repair plant.

Antioch has let the contract for \$43,000 worth of oil macadam street work. Nearly ninety per cent of the property owners have signified their intention to pay cash. Other important municipal work is in contemplation.

Tulare failed to secure the necessary two-thirds vote for the proposed \$40,000 bond issue for school purposes owing to a difference of opinion as to the proposed sites and some question as to the amount of money required.

San Diego has just voted six bonding propositions aggregating \$680,000, as follows: Fire Department, \$80,000; sewer system, \$120,000; streets, \$55,000; water system, \$340,000; play grounds, \$75,000; public comfort stations, \$10,000.

AN IMPORTANT DECISION

By Wm. J. Carr, City Attorney of Pasadena

In *Sunset Tel. & Tel. Co. vs. Pasadena*, 118 Pacific 796, the California Supreme Court settled the rights of the larger cities of the State (those having freeholder charters) in respect to the use of city streets by telephone lines. This case in conjunction with the case of *Western Union Tel. Co. vs. Hopkins*, 116 Pacific 557, left rights of the smaller cities and of the counties in this respect in a very unsatisfactory condition. The rights of the smaller cities organized under the municipal corporations act and the counties to control the use of streets and highways by telephone lines was fully sustained and settled by the decision of the United States Supreme Court in *City of Pomona vs. Sunset Tel. Co.*, decided April 8, 1912. In this case it was held that Sec. 536 of the Civil Code as enacted in 1905 was repealed, except as to telephone lines doing an interstate business, by the Broughton Franchise Act passed at the same session of the legislature. It was further held that the expression "lines doing an interstate business" was to be limited to the main through interstate toll lines.

The Supreme Court in this case finally set at rest the effect of the amendment of Sec. 19 of Article XI of the Constitution, adopted on Oct. 10, 1911. It is chiefly important for the construction which it placed upon the 1911 amendment to Sec. 19 of Article XI of the Constitution. This amend-

ment was held to vest in municipalities the power to say whether or not their streets should be used by the works of the utilities mentioned in the amendment. The claim was advanced by the telephone company that this section as amended was to be construed as extending to telephone companies and the other utility companies mentioned in the section, the same general privileges extended to water and lighting companies. But the court, speaking through Mr. Justice Holmes, said that this claim "does not impress", after pointing out certain provisions from the section as it read prior to its amendment. "We agree with the appellants that the amendment seems intended as a step in the direction of **municipal ownership or control**. The words 'upon such conditions' etc., are not to be confined to police powers, which are conferred by Sec. 11 of the same article, **but are of general import**. If the municipal corporation does not see fit to establish the public works itself it may let others do it; **but its power to impose conditions** excludes the notion that the Constitution alone is a grant to others of a **right to occupy the streets without its consent**."

Under this decision it is within the power of all cities and counties in the state to require the securing of municipal or county franchises for the use of streets and highways by telephone lines.

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

Write for Catalogs. Mention Pacific Municipalities When Writing

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S. F.

Asphalt Machinery

A. L. Young M'chy Co., 26-28 Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Arch. Terra Cotta

Gladding, McBean & Co., Crocker Bldg., S. F.
Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Automobile Public Service Wagons

American La France Fire Eng. Co., 660 Mission St., S. F.
Gorham Eng. & Fire App. Co., 48 Fremont S. F.
Webb Motor Fire Apparatus Co., 550 Montgomery St., S. F.

Bitulithic Pavement

Warren Brothers Company, Los Angeles, Cal.

Concrete Construction

Esterly Con. Co., Inc., 717 Market St., S. F.

Concrete Mixers

Barber Asphalt Paving Co., S. F. & L. A.
Parrott & Co., San Francisco & Los Angeles

Constructing Engineers

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.
American Engineering Corporation, 57 Post St., S. F.
Stephen E. Kieffer, 1st Natl. Bank, Oakland
Nelson & Piper, 618 Mchts Trust Bldg., L. A.
Roberts & Dennicke, Sheldon Bldg., S. F.
Shipman, Denny & Rhame, Atlas Bldg., S. F.

Culverts

Cal. Corrugated Culvert Co., Los Angeles and W. Berkeley
Standard Corrugated Pipe Co., S. F. & L. A.
U. S. Pipe Co., S. F.

Dump Carts and Wagons

A. L. Young M'chy Co., 26-28 Fremont St., S. F.

Electrical Plants & Machinery

A. L. Young M'chy Co., Fremont St., S. F.

Engines

Dow-Williams Engine Co., Sheldon Bldg., S. F.

Engravers and Bond Printers

A. Carlisle & Co., 251 Bush St., S. F.
Sierra Art Eng. Co., Front & Com. Sts., S. F.

Fire Department Equipment

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Engines

Gorham Eng & Fire App Co., 48 Fremont St S. F.

Fire Hose

Gorham-Revere Rubber Co, 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.
Gorham Eng & Fire App Co., 48 Fremont St S. F.
The Gutta Percha & Rubber Mfg. Co., 34 Fremont St., S. F.
The Diamond Rubber Co.
Eureka Fire Hose Mfg. Co., 54-58 Fremont St., S. F.
Bowers Rubber Works, San Francisco

Fire and Police Boats

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Pumps

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Gasoline Engines

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Hydrants

Water Works Supply Co., Monadnock Bldg., S. F.

Inspections and Tests

Robt. W. Hunt & Co., 418 Montgomery, S. F.
Smith, Emery & Co., 651 Howard St., S. F.

Municipal Accountant

William Dolge, C. P. A., 311 California St., S. F.

Municipal Castings

Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Pacific Foundry Co., 18th & Harrison, S. F.

Municipal Engineers

Sloan & Robson, Nevada Bank Bldg, S. F.
Roberts & Denicke, 461 Market St., S. F.
Shipman, Denny & Rhame, Atlas Bldg., S. F.
Smith, Emery & Co., 651 Howard St., S. F.

Municipal Printers

A. Carlisle & Co., 251-253 Bush St., S. F.

Municipal Water Works

Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Smith, Emery & Co., 651 Howard St., S. F.

Packings

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Pavement Materials

Barber Asphalt Paving Co., S. F. and L. A.
Warren Brothers Company, Los Angeles, Cal.

Pipes

U. S. Iron Pipe & Foundry Co., 701 Monadnock Bldg., S. F.

Pumping Machinery & Supplies

Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Water Works Supply Co., Monadnock Bldg., S. F.

LIST OF RESPONSIBLE FIRMS—Continued**Playground Apparatus**

A. L. Young Machinery Co., S. F.
 Fred Medart Mfg. Co., St. Louis, Mo.

Road Machinery

The Good Roads Mach'y Co., Ft. Wayne, Ind.
 A. L. Young M'chy Co., Fremont St., S. F.
 Barber Asphalt Paving Co., S. F. & L. A.

Road Oil

Standard Oil Co., S. F.

Roofing

Barber Asphalt Paving Co., S. F. and L. A.

Rubber Goods

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.
 The Diamond Rubber Co.
 Bowers Rubber Works, San Francisco

Sanitation Expert

Harold Farnsworth Gray, Berkeley, Cal.

Scrapers

A. L. Young M'chy Co., Fremont St., S. F.

Septic Tanks

Pacific Flush Tank Co., Chicago.

Sewage Pumps

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Sewer (Concrete)

Esterly Con. Co., Inc., 717 Market St., S. F.

Sewer Fittings

Pacific Foundry Co., 18th & Harrison, S. F.
 Pacific Flush Tank Co., Chicago.

Sewer Pipe and Terra Cotta

Gladding, McBean & Co., Crocker Bldg, S. F.

Steiger Terra Cotta Co., Mills Bldg., S. F.
 N. Clark & Sons, 112-116 Natoma St., S. F.

Sewer Systems

Sloan & Robson, Nevada Bank Bldg., S. F.

Street Sweepers

A. L. Young M'chy Co., Fremont St., S. F.

Suction Hose

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Water Meters

Neptune Meter Co., S. F. & L. A.

Water Works Supply Co., Monadnock Bldg., S. F.

Water Works Equipment

Water Works Supply Co., Monadnock Bldg., S. F.

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Wires

John A. Roebling's Sons Co., S. F.

Water Works Supply Co., Monadnock Bldg., S. F.

Valves

Water Works Supply Co., Monadnock Bldg., S. F.

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Sidewalks (Cement)

Esterly Con. Co., Inc., 717 Market St., S. F.
 Steel Protected Concrete Co., Phila., Pa.

Street Signs

A. L. Young Mch. Co., S. F.

California Metal Enameling Co., Bairdstown, L. A.

Robert W. Hunt

John J. Cone

Jas. C. Hallsted

D. W. McNaugher

Robert W. Hunt & Co., Engineers**Bureau of Inspections, Tests and Consultations****Chemical and Physical Laboratories**

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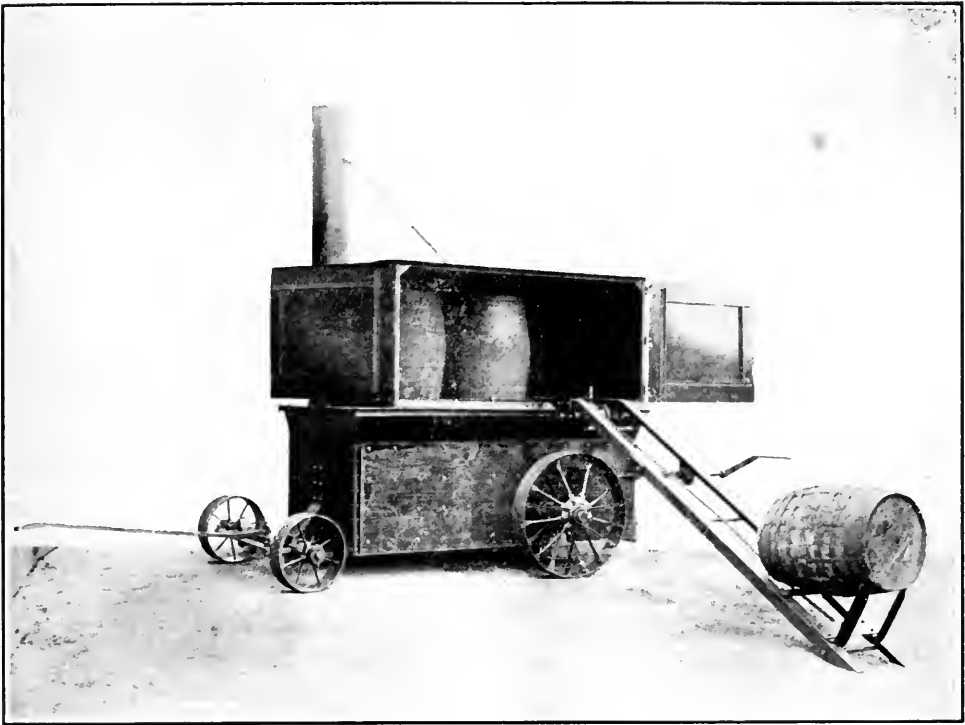
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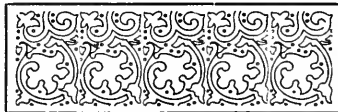
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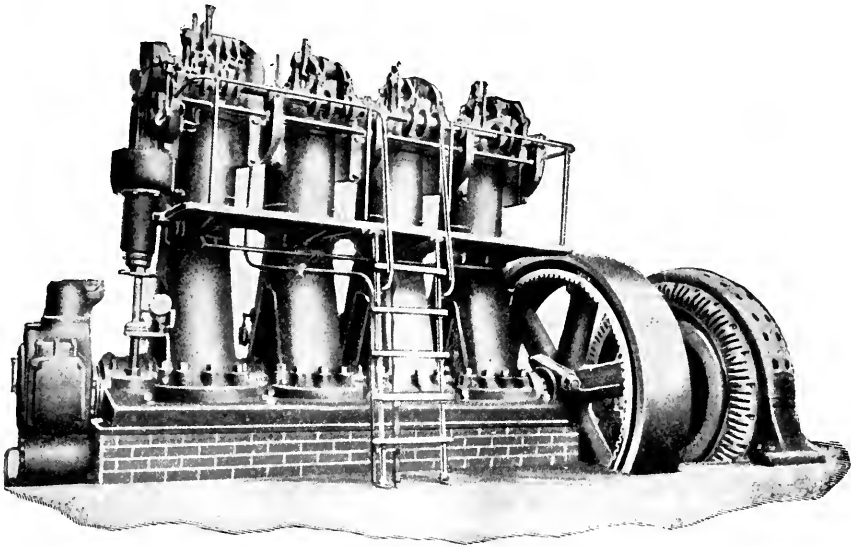


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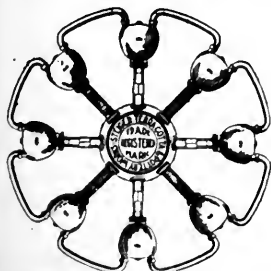
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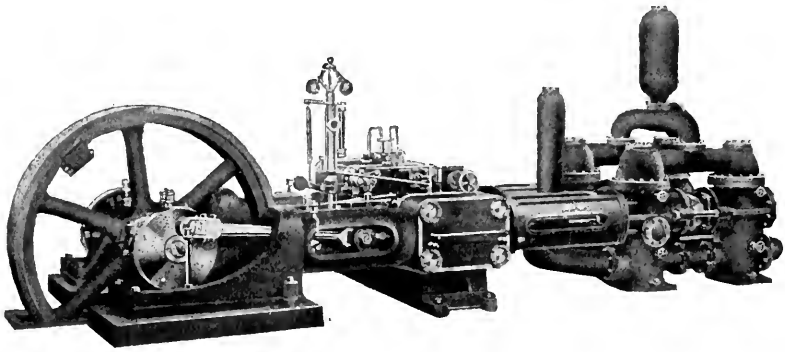
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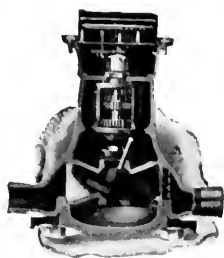
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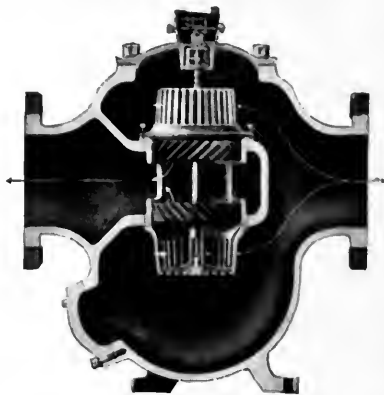
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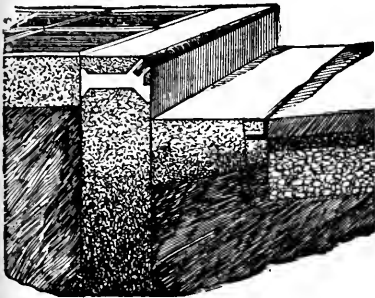
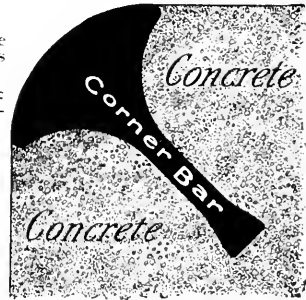
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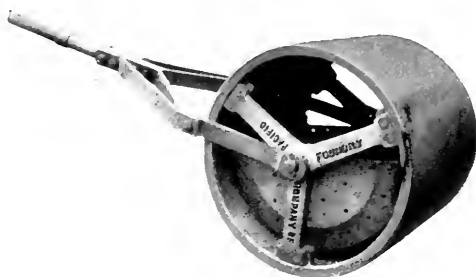
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AN OPEN LETTER

Dear Reader:

You have probably noticed that our magazine has grown considerably in size and improved very much in quality, during the past few years. It has also increased largely in circulation.

Its contents are certainly worth reading, and we want to impress you with the importance of paying as much attention, if not more, to the advertisements in "Pacific Municipalities", as often they are just as valuable to you as the reading matter.

All the advertisements are from responsible firms of high standing, as we take particular pains to keep out fakes and those of an objectionable character, and allow no misleading statements to appear. We also try to impress upon our advertisers the desirability of making their copy of a type that is educational.

Do you realize that it has been proven conclusively that magazine advertisements of today are alone worth the price of subscription? Do you know that some firms pay so much as \$10,000 per year, and even more, to the man who prepares the copy for their advertisements? Such men are experts and are just as familiar with the goods they write about as the head manager or his best salesman. Many of these same firms spend millions of dollars besides in catalogues and other printed matter, all of which are free to the interested public. You should never hesitate to ask for them.

Regardless of what your needs may be, you may rest assured that those firms who can afford to buy space in our magazine must have the goods, as it is only the ones who do not carry the highest type of goods who leave it to their salesmen to find a market for them. Many of them are afraid to advertise, and when asked why they do not, will evade a direct answer and refer to some other publication which they know you do not read.

Our editor is often desirous of publishing one or more articles which would be of vital interest to our readers, but after consulting me, is convinced that our finances would not permit it. To postpone publication for the following issue would lessen the value of the article or make it almost worthless, because the time when the object is of interest or value has passed. As a result the article in question never appears.

The income of the magazine is derived from its advertisers, and if our readers would work hand in hand with this office and consult our advertising pages when they are in need they would prove the value of advertising in "Pacific Municipalities" and thereby enable the publication of a bigger and better magazine for the same money; incidentally, this would result in uplifting the organization, which at the present time is the largest and best of its kind in the United States.

Recently it came to my knowledge that a very active member of the League received an advertiser who casually referred to his advertisement in "Pacific Municipalities". He replied: "I never read the advertising pages of any magazine." This man does not know what he is missing, and I would advise him and all other readers of the same mind to change their attitude and read everything. Sometimes they will find in a small space of perhaps half a page more concentrated facts than are often contained in a ten-page article. The contents of a good advertisement are always to the point, because the advertiser must pay for the space he uses and is therefore obliged to express himself with the fewest possible words.

In conclusion I wish to remind you that "Pacific Municipalities" is the official organ of the League. Our advertisers are friends of the League and in sympathy with our work; they should be courteously treated at all times, as all they ask is an equal chance and a "square deal."

Yours very truly,

J. F. SELIG, Business Manager.



Fifty miles an hour on an Oil Macadam Road. Note absence of dust. (Exposure 1-1000 sec.)

Elastic, Self-Cementing Roads

withstand modern traffic

The best way to construct
such roads is by the use of

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used in accordance with proper specifications

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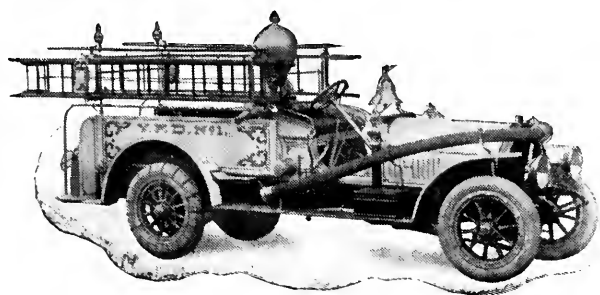
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It will mix the concrete base, melt up old asphalt without injury to it. Heat the stone and mix the bituminous macadam.

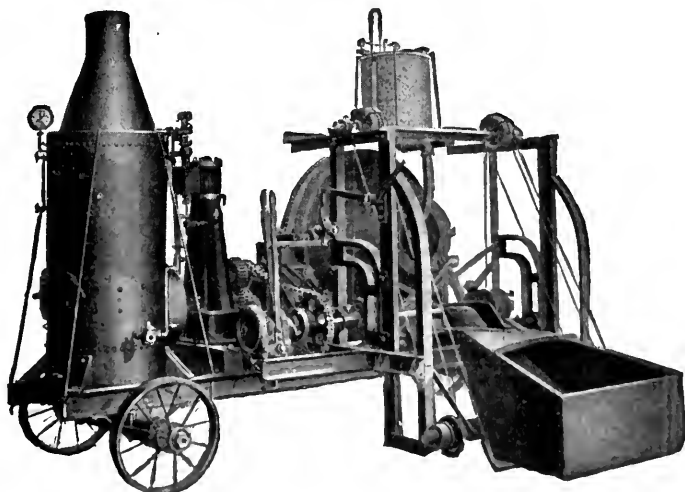
It will handle any macadam mixture, whether based on tar or asphalt.

Will melt a full batch of asphalt in 7 to 9 minutes.

Take off the heater pipe and you have a standard Smith concrete mixer with side loader.

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Easily portable, strong, speedy.



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BITULITHIC

beautifies the city and enhances the value of property more than any other form of construction.

BITULITHIC

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OFFICIAL ORGAN OF THE LEAGUE OF CALIFORNIA MUNICIPALITIES

Entered at Post Office, Santa Clara, Cal., as Second-Class Matter

VOL. XXVI

FOURTEENTH YEAR

No. 6

EDITORS H. A. MASON AND WM. J. LOCKE

EDITORIAL OFFICE NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO

PUBLICATION OFFICE, SANTA CLARA, CALIFORNIA

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PACIFIC MUNICIPALITIES

A Journal for Progressive Cities

VOL. XXVI

JUNE 29, 1912

No. 6

STREET PAVEMENT SPECIFICATIONS

Report of the City Engineer of Berkeley on the Various Kinds of Street Pavements Best Suited to the Peculiar Conditions Existing in That City

Berkeley, California, February 16, 1912.

To the Honorable Mayor and Council of the City of Berkeley, California.
Gentlemen:

In response to your request for report upon street pavement question in the City of Berkeley, with recommendations concerning character of pavements to be used upon certain streets, I wish to present the following:

From the standpoint of public interest and convenience, as well as from the financial considerations, the subject of street pavements is, perhaps, the most important that the city officials of any municipality are called upon to consider. It even has a very important bearing upon the health of the city. Clean, hard surface streets induce like sanitary conditions upon premises of abutting property. On account of its importance, therefore, no one municipal problem has received more careful attention and study than this, and yet the final solution of the question seems no nearer than many years ago. Some progress, however, is to be noted along these lines, and like many other engineering problems, the final solution can be expected only upon a careful study of results in other cities in the light of a thorough knowledge of local conditions as regards all the elements that enter into a complete consideration of the question.

On account of climatic conditions, the problem in the bay cities would appear to be especially simple of solution. We have no cold weather to freeze and soften the sub-grade, or disintegrate the pavement. No ice and snow to remove with consequent injury. Nor on the other hand, are there long periods of high temperature causing damage from expansion of rigid pavements, or undue softening of bituminous surface.

An analysis of the pavement question in Berkeley is here presented to help in the consideration of the question at this time. Since the subject of covering our streets with hard surface pavements is becoming more urgent

each year, some policy should be decided upon and pursued intelligently in order that mistakes along this line may not be made and continued from year to year, thereby subjecting the city to large unnecessary expense.

The following pavements are possible for Berkeley:

No. 1—Wood Block Pavement

Concrete base 6 inches thick; sand cushion 2 inches thick; creosoted wood blocks 3 inches thick; joints grouted with asphalt.

No. 2—Brick Pavement

Concrete base, 6 inches thick; sand cushion, 2 inches thick; vitrified brick surface, 4 inches thick; joints well grouted with cement grout.

No. 3—Basalt Block Pavement

Concrete base, 6 inches; sand cushion, 2 inches; basalt block surface, 4 inches; joints grouted with cement grout.

No. 4—Concrete Pavement

- (a) Ordinary cement.
- (b) Hassam pavement, six (6) inches thick.

No. 5—Concrete Base Pavement

Concrete base, 6 inches; binder, $1\frac{1}{2}$ inches; surface, $1\frac{1}{2}$ inches. Standard Asphalt Pavement.

No. 6—Concrete Base Pavement

Concrete base, 5 inches; surface, 2 inches.

No. 7—Bituminous Base Pavement

Asphalt macadam base, 3 inches; 2-inch wearing surface containing 20% to 30% rock larger than $\frac{1}{4}$ inch.

No. 8—Bituminous Base Pavement—Bitulithic

Macadam base with liquid asphalt poured course as binder—4 inches.

Bitulithic wearing surface consisting of thoroughly graded rock aggregate reducing voids to a minimum, cemented together with 7 to 9 per cent of 80 to 100 penetration asphalt.

No. 9—Macadam Base

Old macadam thoroughly repaired, covered with 3 inches of asphalt concrete.

Discussion

Pavements may be compared as follows:

- (a) As to original cost of construction and qualities of durability.
- (b) Ease of repair.
- (c) Cleanliness.
- (d) Sanitation.
- (e) Dustlessness.
- (f) Noiselessness.
- (g) Slipperiness.
- (h) Ease of travel which they possess.

The reason that there is some difference of opinion as to the best pavement is due to the fact that no one pavement possesses all these qualities in

the highest degree. The first-class pavement is the one that possesses the best combination of the above qualities.

The above mentioned classes of pavements will be considered as bearing on the question in Berkeley.

No. 1 Wood Block Pavement is in many respects a perfect pavement, and since lumber is cheap there is but one reason in the way of its extensive use and that is decisive, namely, the cost of construction. Wood blocks, containing 15 pounds creosote per cubic foot laid as above will cost from \$2.25 to \$2.70 per square yard, which is prohibitive at the present time in Berkeley.

No. 2 Brick Pavement as described scores high also as a perfect pavement. Many large cities in the east are using it almost exclusively. Counties are using it extensively also for highway construction, but this part of California, at least, seems to be unfortunate in that no uniform first-class paving brick seems to have been produced, and to import them from without the state makes this pavement also too expensive.

No. 3 Basalt Block Pavement, while most durable of all, is correspondingly expensive when properly laid. Its use at the present time in Berkeley is not necessary nor warranted.

No. 4 Concrete Pavement is coming to be used to some extent and may be desirable for heavy traffic upon steep grades where other hard surface pavements may prove too slippery. The cost of construction is not great, and on this account its use may grow in favor. It presents a rather severe surface and its extensive use at this time I would not recommend.

There have been eliminated from present consideration four good pavements as not being adapted to local conditions. In their stead I would recommend for our use some form of bituminous surface pavement, as it undoubtedly excels in most of the stated requisites of a good pavement. There are several forms of such pavement to choose from which we will briefly notice.

No. 5 Standard Asphalt Pavement: This is the form of asphalt pavement most generally adopted, and its qualities are well known and generally favored. The cost is the only thing that stands in the way of its extensive use. From \$2.00 to \$2.25 per square yard is expensive for pavement as described.

The value of the binder course has always been questioned. If this is eliminated, which I think can be safely done, a considerable item of expense is eliminated. Also a slight saving can be made by reducing the thickness of the base from 6 to 5 or 4 inches, which can be done with safety upon the firm, well drained, sub-grade of most of our streets.

No. 6 Concrete Base Pavement: This brings us to pavement No. 6 as the second bituminous pavement with cement concrete base. This pavement should be laid at a cost of \$1.60 to \$1.80 per yard. Next in order would come the pavements having bituminous base.

No. 7 Bituminous Base Pavement: Base of three (3) inches asphalt macadam with a bituminous wearing surface two (2) inches thick, containing 20 to 30 per cent of rock larger than $\frac{1}{4}$ inch.

No. 8 "Bitulithic" Pavement: Four inches macadam base with poured course of liquid asphalt upon which is laid a wearing surface two inches thick of "bitulithic" pavement consisting of an aggregate of rock and sand graded so as to reduce the voids to a minimum and cemented together with from 7 to 9 per cent of rather soft (90 to 100 penetration) asphalt. This pavement in principle is mechanically correct in that it provides for the load to be carried by the rock aggregate, which enables the rock to be cemented by a softer asphalt than can safely be used in standard pavements without waving or rolling. The only reason for not using this pavement extensively, if that be a reason, is that it is a patented pavement. Even our asphalt macadam pavement which has proven very satisfactory, being an infringement upon it. Many cities are using it very extensively. Portland, Oregon, laid last year nearly one million square yards of the same. The royalty on the pavement amounts to about 25c a square yard. The cost of this pavement will be approximately \$2.00 per yard.

There yet remains to be discussed one style of pavement that for Berkeley should have extensive use.

In general, the sub-grade of our streets is well drained and the quality of the macadam now laid thereon is good. To cover the streets with oil surface cannot be called permanent construction, but the macadam now existing is perfectly solid and will make a good base for asphalt covering for many streets in residence sections. Many streets have too high crown for this, but generally this can be reduced by resurfacing street which would be generally necessary, anyway as part of process.

No. 9 Existent Macadam Base: Three inches bituminous surface containing 30 per cent rock larger than $\frac{1}{2}$ inch. This pavement should be laid at a cost of \$1.25 to \$1.35 per yard.

Of these 9 different classes of pavements none are **poor** pavements. In the ordinary sense of the term, not to be called experimental pavements. Some classes cost more than it is necessary for Berkeley to pay. Since, however, there are several choices possible different classes may be tried to determine their limitations and applicability to local conditions.

Recommendations

On account of their importance and their condition as to repair I would recommend that the following streets within the limits designated, be adopted for improvement as a reasonable paving program for this season with certain modifications to be made at the time of preparation of specifications to be adopted by the Council:

That **Shattuck avenue** from Bancroft way southerly to the south city line; **Bancroft way** from Barrows to College avenue; **Allston way** from Fulton to Dana; **Center street** from Milvia to Grove; **Telegraph avenue** from Dwight way to south city line, be paved with two-inch asphalt surface on concrete base five inches thick. No. 6 as above mentioned.

That **College avenue** from Bancroft way to south city line; **Oxford street**, from Hearst avenue to Allston way; **Addison street** from Grove to Shattuck avenue; **Milvia street** from University avenue to Allston way; be paved—

base of three inches asphalt macadam and two inch asphalt wearing surface containing 20% rock greater than $\frac{1}{2}$ inch. No. 7 above described.

That **Shattuck avenue** from Hearst avenue to Vine street; and **Adeline street** from Shattuck avenue to south city line; be paved with bitulithic pavement. No. 8 above described.

And that **Bowditch street** from Bancroft way to Dwight way; and **Dwight way** from Shattuck avenue to Warring street, be paved with three inches bituminous pavement on macadam base.

I would further recommend that in general this work be done under ten year bond proceedings, as encouraging this work being done now. The next three years are to be the most important in Berkeley's history, and the splendid appearance of these, our main thoroughfares, will be of great value to the city.

The above discussion as to character and quality of pavements is in line with the present trend of opinion on the subject, and I am sure the recommendations as to paving program for the season is as conservative as a progressive city should consider.

Very respectfully submitted,

J. J. JESSUP,

City Engineer of Berkeley.

Berkeley, California, February 20, 1912.

To the Honorable Mayor and Council of the City of Berkeley, California.
Gentlemen:

With reference to my report on the Street Paving program for 1912, made one week ago, and supplementary thereto, and in accordance with your subsequent instructions, I wish to make the following recommendations for definite action by the Council as outlining the policy of the Council to be pursued this season with reference to these improvements.

The following streets are badly in need of repair at the present time and require every year considerable outlay for their maintenance. I would, therefore, recommend that within the limits designated, they be adopted for improvement as indicated, this season, with certain modifications to be made at the time of preparation of specifications to be adopted by the Council.

That **Shattuck avenue** from Bancroft way southerly to the south city line; **Bancroft way** from Barrows to College avenue; **Allston way** from Fulton to Dana; **Center street** from Milvia to Grove; **Telegraph avenue** from Dwight way to south city line; be paved with two-inch asphalt surface on concrete base five inches thick. No. 6 previous report.

That **College avenue** from Bancroft way to south city line; **Oxford street** from Hearst avenue to Allston way; **Addison street** from Grove to Shattuck avenue; **Milvia street** from University avenue to Allston way; be paved—base of three inches asphalt macadam and two-inch asphalt wearing surface containing 20% rock greater than $\frac{1}{4}$ inch. No. 7 of previous report.

That **Shattuck avenue**, from Hearst avenue to Vine street; and **Adeline street**, from Shattuck avenue to south city line; be paved with bitulithic pavement. No. 8 of previous report.

And that **Bowditch street**, from Bancroft way to Dwight way; and **Dwight way**, from Shattuck avenue to Warring street; be paved with three inches bituminous pavement on macadam base.

That **Benvenue avenue**, from Dwight way to Derby street, be paved with one and one-half inches asphalt surface on four-inch concrete base.

That **San Pablo avenue**, the last few years, has received more attention, by way of repairs to keep it merely passable, than any other street in Berkeley. Eight thousand dollars has been spent thereon for repairs during the last three years. It has been clearly demonstrated that on the flat grade of this street under the heavy traffic thereon macadam pavement is inadequate. It should therefore be also included in this pavement program.

I would recommend that in general this work be done under ten year bond proceedings, as encouraging this work being done now, making payment therefor to extend over part of the life of the pavement.

The next three years are to be the most important in Berkeley's history and the splendid appearance of these, our main thoroughfares, will be of the greatest value to the city, hence this program should receive the enthusiastic support of all civic bodies and public-spirited citizens.

I have also prepared a map, which I present herewith, that will set forth these improvements in a more readily comprehensible manner than is possible by verbal report.

Respectfully submitted,

J. J. JESSUP,
City Engineer of Berkeley.



SOME CONSIDERATIONS IN THE CHOICE OF A PAVEMENT *

By Prof. Leonard S. Smith, University of Wisconsin, Madison, Wis.

What is the best pavement? is a question which citizens, city officials and even some engineers are not infrequently guilty of asking, forgetful of the plain fact that such a question admits of no ready or simple answer. As well might it be asked what is the best bridge or the best house to build. It is a most hopeful sign that the past year has seen many papers read at engineering society meetings discussing this question of considerations affecting the choice of a pavement.

It cannot be too emphatically stated that in each case the best structure for a pavement depends upon the particular service required of it and also, too, upon the widely varying local conditions. These modifying factors naturally divide themselves into two general classes. The first of these govern the conditions to which the pavement will be subjected. Chief among these fac-

*A paper before the Engineering Society of Wisconsin.

tors are the quality, nature and even the direction of the traffic, the character of the district served by the pavement, the grade of the street and the presence of car tracks.

On the other hand, the second class of factors which may determine the selection have reference to the character of the pavement itself, such as durability, smoothness, noiselessness, slipperiness, cost, etc.

The best pavement for some particular street, then, would be the one which would give the greatest and most needed service, using the word service in a broad way. The limits of this paper will not allow of a full discussion of this question, but my point can be most clearly explained by giving a few applications of the principle. For example, if the street had a steep grade, all such considerations as smoothness, noiselessness, cost, etc., must needs give way to the single governing quality of non-slipperiness. Again, if the street in question were on a moderate grade in a high-class residence district or in the office-building district of a large city, the factors of smoothness and noiselessness might properly determine the final selection. Such a selection, while involving a very expensive pavement, has repeatedly been shown to fully justify itself by the added value and earning capacity of the property. As a third example, considering the choice of a pavement in a wholesale district, subject to concentrated heavy traffic and non-slipperiness would here naturally receive the greatest consideration.

The above statements are so obviously based on common sense that it may seem to some useless to take up valuable time in their presentation. Repeated inspection of the pavements in a score of our largest cities has shown the writer that the choice of pavements has too frequently been left to chance or prejudice. Our growing vision of municipal efficiency discerns a much-needed reform in the choice of our pavements, a reform certain of realization.

But while there is great economic need that the best fitted pavement for each particular street should be thoughtfully and carefully chosen, it is at least of equal importance that all such paving improvements should proceed in accordance with some well-considered plan—some comprehensive system for future improvement of the entire city, ward or region. For example, pavement improvements should be so planned as to provide several parallel routes for through traffic. If this be not done, the single route becomes congested and the pavement is prematurely worn out. Again, pavements should be continuous, both for the convenience of traffic and for ease of maintenance.

In the case of country highways, it is necessary to construct disconnected stretches of pavement, but even here it is of prime importance that such construction should proceed in accordance with a systematic plan, so that disconnected stretches may eventually become a part of a complete system. For example, in our own State it would be easy to select a few trunk roads leading from the metropolis of the State to the adjoining cities, and still others connecting the largest city or county seat of each county, as being certain to attract the heaviest traffic. Portions of such trunk roads should be improved with reference to sustaining heavy traffic and also with a view of becoming a part of an intra-state system.

Unhappily, the city paving program is too often determined by the ward politician or the opposition in favor of short-sighted real estate owners. A few cities which have tried this plan of adopting a paving program extending over ten years will soon occupy an enviable position. Our cities cannot do better in this respect than to follow the example of the most successful railroad companies.

While future traffic conditions may render necessary here and there a change in the detail plan, the city is certain to gain largely in the end because of having a carefully prepared plan for all street improvements, including water, sewer and gas as well as pavements.

The charter of many American cities provides that the abutting property owners shall pay for the first pavement, while the city must pay for all repairs and renewals. As might be foreseen, this has resulted in the selection and construction of many cheap and inferior pavements, where much more permanent construction would have been justified. But this abuse has not stopped here. Long time bonds have been commonly issued to secure the payment of such temporary pavements, in many cases falling due twenty-five years or more after such pavement has utterly worn out.

Such a system of financing pavements cannot be characterized as anything short of dishonest. It simply transfers to the backs of our children the burdens we of right should bear ourselves. For the future will doubtless have sufficient burdens and problems of its own without being required to shoulder in addition those of today.

Already legislatures are considering corrective legislation. The writer knows of at least one eastern legislature which in 1910 passed a law prohibiting a city from paying for short-life pavements out of the proceeds of any bond sales. This principle of "pay as you go" deserves a wide adoption.

It is worthy of restatement that cheapness does not necessarily mean a cheap price of the pavement when laid; indeed, such a pavement may likely prove the most expensive in the end. The other governing elements which determine the actual cost of a pavement are the annual cost of repairs and the term of life of the pavement. Permanent pavements may properly be paid for out of the proceeds of bond issues payable during the life of the pavement. In such cases the public will eventually have to pay for the following items: Interest on the bonds, cost of repairs and annual sums for a sinking fund, which by the time the pavement is worn out will pay off the bonds. Such a plan may be shown by the following formula:

$$S + CI + \frac{R}{L} = \text{annual cost,}$$

where S=the yearly amount put in the sinking fund
 C=first cost of the pavement
 I=the rate of interest
 L=the life of the pavement in years
 R=the total cost of repairs.

Obviously, the cheapest pavement is the one involving the least annual

cost. If, for example, macadam pavement be chosen for a street having traffic,

R

the last term—would be so large as to make such a pavement the most ex-

L

pensive type that could be chosen. This fact is an added illustration of the importance of a wise selection of a pavement for the traffic conditions.

New York state for several years has been making the colossal mistake of issuing many millions of long-time bonds in payment of some form of macadam even on heavy traffic trunk highways, where they very frequently have failed after a comparatively short term of service. Such is the judgment of well qualified engineers who have had charge of the construction and maintenance of such roads. The seriousness of this situation will not be fully realized until after the officials responsible for this error have passed to their final reward. Other states nearer home have made similar mistakes.

The construction of some form of the macadam road fulfills at a minimum cost all reasonable demands on streets or country highways carrying a moderate traffic, especially if such roads have the added protection of continuous maintenance. This class includes over half of our country roads.

But if such improved highways happen to connect two or more large cities, the unusually heavy traffic which such a road at once attracts results in certain and speedy failure. The advent of automobile and other forms of motor traffic, while it has lengthened the life of hard city pavements, has been the chief cause of the destruction of macadam roads. The seriousness of this problem of the choice of proper road material is realized when we reflect that the demands made by this new form of motor traffic are certain to greatly increase in the near future. Highway engineers of every land are looking for an adequate remedy, but so far with only partial success. While constructional methods in nearly all other lines of engineering have been satisfactorily perfected and standardized, we find present highway construction on main trunk roads grossly inadequate for even the traffic of today, thereby causing needlessly large charges for maintenance.

It has seemed to the writer that real progress would be made by breaking away entirely from macadam construction on heavy traffic main highways. The improved and more permanent construction best suited to replace the macadam on such roads will here again be largely a local question. Ohio, Indiana and Pennsylvania have taken the first steps toward satisfying the demand for a more permanent construction by building many hundreds of miles of brick pavements laid on a concrete base with a cement grout filler, all supplemented usually by wings of dirt, gravel or macadam. The expense of such a pavement, about \$1000 per foot of width per mile, does not exceed the average price paid by New York state for its wider but short life macadam roads, while the brick roads, if properly constructed, promise to be in good condition twenty-five years hence.

Wayne county, Michigan, has constructed a good many miles of main highways, leading out of Detroit, of rich concrete, seven inches thick, at prices which also compete with eastern macadam, while giving promise of

outlasting the latter by many years. Where the proportion of automobile traffic is not too great, a large amount of traffic has generally been economically provided for by some form of the bitulithic construction. It may be that Wisconsin, with her widely distributed rich deposits of good gravel and other road materials can wisely follow one or all of these forms of permanent construction. Few states are more favorably situated for road building than Wisconsin. We are fortunate also in being able to profit by the experiments of our older sister states. These have shown us that there is no one best pavement and no one best way of constructing it under all circumstances.

We now recognize that the selection of road material and the method of incorporating it into a road is in large part a local question; in fact, that highway construction in city and country obeys the same rules of procedure as do all other forms of good engineering.



COMPARISON OF CINCINNATI PAVEMENTS

The Bureau of Municipal Research of Cincinnati has issued a report dealing with the selection of pavements. This report, which was prepared by James E. Barlow, engineer of the bureau, gives a careful analysis of the paving question in Cincinnati and outlines a system of cost records and historical data which will prove of great value in determining the kinds of pavement to be adopted in the future. The portion of the report which deals with the question of economy in paving construction presents an exceptionally thorough discussion of the method of comparing paving materials as regards their ultimate cost.

In the following abstract of this portion of the report it should be remembered that the actual figures of the comparison in prices are influenced by the proximity of Cincinnati to the center of the paving brick industry, which makes brick pavement lower in first cost, and also that the limestone which is found in that locality is comparatively soft and traffic conditions are such that a longer life for the macadam pavements might be observed under different conditions. The method of arriving at the comparative economics, however, warrants only favorable criticism.

The most economical pavement is taken to be that which will show the lowest average cost per year during its entire life. This annual cost is defined as that amount of money which, if applied annually, will keep the street under consideration perpetually paved and repaired; and is compared to an annual rental such as would be required should a public service company construct and maintain the pavement and charge such a rental for its use. In such an event, however, an additional charge for profit for the corporation would be charged.

The average annual cost is composed of three principal factors:

1. Average annual cost of repairs.
2. Interest on the cost of the pavement.

3. Annual charge on account of sinking fund; i. e., a fund set aside and invested each year such that the pavement, when worn out, will have been completely paid for.

— In order to apply this principle to the selection of a pavement for a given street, certain extra data are necessary, such as the durability and cost of repairs of each kind of pavement under various conditions, especially those of traffic. As a matter of fact, the information of this character which is available in most cities is meager and fragmentary, due to the long period necessary for such an extended investigation and the lack of continuity of records through changing administrations.

To determine the annual interest charge, the first cost of the various kinds of pavements must of course be known. A study of public records shows that the price per square yard in Cincinnati for the past four years for the various kinds of pavements has been approximately as follows:

Kind of Pavement	Min.	Max.	Approx. Average
Granite	\$3.25	\$4.69	\$3.70
Wood block	2.60	3.93	3.45
Bitulithic	2.14	3.22	2.65
Asphalt	1.81	2.62	2.30
Brick	1.86	2.50	2.25
Granitoid	1.54	2.50	2.10
Macadam66	1.30	.95
Boulder	1.50	2.15	1.75

The above prices include: (a) Excavation equal to the total thickness of the pavement; (b) all consolidation of subgrade; (c) a six-inch concrete foundation, and (d) furnishing and laying the surface complete above the foundation. The macadam is 12 inches thick and has no concrete foundation; the boulder likewise has no concrete foundation. Inasmuch as a good Portland cement concrete foundation should outwear several surfacings, it will be necessary for the determination of the replacement fund to separate the cost of the foundation from that of the surfacing. One dollar per square yard may be taken as a reasonable average price, including work and materials, for the concrete foundation; subtract this figure from the amounts above given and the difference will represent the average cost of the surfacings. Upon these costs the interest is calculated, the rate assumed being 4 per cent.

The average cost of repairs for individual pavements during their life is stated to be not available in Cincinnati. However, the gross amount of money expended annually for several years past on each kind of pavement is given. From this and such available records of the amount of each kind of pavement in use a figure is obtained for the average cost of local repairs per square yard per year, and summarized as follows:

The gross expenditures in the first three columns were taken from the annual reports of the street department. In order to determine the last column, the most recent United States Census Report was used as a basis for the amount of each kind of pavement in use. No allowance was made for streets under guarantee. Particular attention is called in the report to the high repair cost of macadam, especially as compared with brick.

The annual cost of repairs to a Portland cement concrete foundation is assumed to be negligible.

In determining the annual payment on account of the sinking fund, the two factors noted were the initial cost and the durability or length of life. For the latter the figure desired for each kind of surfacing represents the average length of life under the average conditions to which it has been subjected in Cincinnati. The figures given below are of necessity not exact, but are fair approximations.

Kind of Pavement.	Gross Expenditures for Repairs.			Average Cost
	1908.	1909.	1910.	Per sq. yd. Per Year
Asphalt -----	\$ 62,994.00	\$ 46,000.00	\$ 48,271.44	\$.073
Granite -----	27,995.00	30,443.00	34,213.00	.026
Brick -----	14,005.00	22,797.00	10,016.00	.012
Boulder -----	30,640.00	31,861.04	36,347.12	.033
Macadam -----	258,930.40	332,511.01	328,232.34	.076

The life of the Portland cement concrete foundation is assumed to be fifty years.

With the foregoing data as a basis, the annual amount of money required for the sinking fund is readily calculated by the use of standard tables.

The following table gives a summary of the foregoing data, on the basis of which is worked out the continuous annual expense per square yard for keeping paved and repaired each different kind of pavement under its actual local conditions:

Underlying Data—

	Granite.	Wood Blk.	Bitu- lithic.	Asphalt.	Brick.	Boulder	Macad.
First cost of surfacing	\$2.70	\$2.45	\$1.65	\$1.30	\$1.25	\$1.75	\$0.95
Assumed life -----	25 yrs.	?	?	15 yrs.	15 yrs.	25 yrs.	8 yrs.
Average Annual Cost of Surfacing—							
Interest at 4 per cent on cost of surfacing	0.108	0.098	0.066	0.052	0.050	0.07	0.038
Average annual cost of repairs -----	0.026	?	?	0.073	0.012	0.033	0.076
Annual charge for sinking fund -----	0.063	?	?	0.063	0.060	0.041	0.100
Oiling or watering--	-----	-----	-----	-----	-----	-----	0.04
Total, surfacing --	0.197			0.188	0.122	-----	-----
Average Annual Cost of Foundation ----	0.046	0.046	0.046	0.046	0.046	-----	-----
Total average annual cost per sq. yd.----	0.243	?	?	0.234	0.168	0.144	0.254

From the application of this annual expense method it is seen that the respective costs of granite, asphalt and macadam, under the actual conditions under which each has been used in Cincinnati, are not far apart, while brick is considerably lower. Boulder is disregarded, being considered obsolete for general use. Lack of data on life and repairs makes figures for wood block and bitulithic uncertain, the latter having been first laid only about ten years ago.

Perhaps the most significant facts brought out by the above table are the relatively high cost of macadam and the relatively low cost of brick, the

macadam costing nearly 50 per cent in excess of brick. In comparing the above annual costs, the fact must not be lost sight of that the different classes of pavements are not on the average subject to the same traffic conditions; that is, macadam is used normally on streets of light traffic, and yet costs about the same as granite, which is used on the heaviest traffic streets. Hence, if the macadam were replaced with a more permanent pavement, its comparative costliness would be more marked than shown above.

NOTE.—The foregoing article is taken from the June number of Municipal Engineering. We publish it because it proves the very important and interesting fact, that although macadam is the cheapest pavement to construct in the first instance it is after all the dearest form of pavement to put down when subject to heavy traffic. In consideration of this significant fact, our readers should remember also that macadam is never clean, sanitary or as enjoyable as a hard smooth pavement, and during its entire life is either dusty or muddy all the time. Therefore macadam pavement also means the greatest expense for the least satisfaction.



THE GERMAN AND THE AMERICAN CITY

BY FREDERICK C. HOWE IN SCRIBNER'S MAGAZINE

THE German city is a cross-section of Germany just as the American city is a cross-section of America. The city cannot be divorced from its setting or studied apart from its historical environment. The German city is a part of the traditions, the sense of the Fatherland, the universal efficiency, the far-sighted outlook, the paternalism vitalized by patriotism of the German people. The American city, on the other hand, has no traditions. There is no sense of responsibility. It is efficient only in spots. It has no vision beyond the present. It reflects the extreme individualism and license which characterizes the nation. It is democratic in form, but hardly in reality. And measured by the services rendered, or the sense of the paramountcy of the State, it is far less democratic than the German.

The most obvious thing about the German city is its orderliness. The

most obvious thing about the American city is its disorderliness. The American city is an accident, a railway, water, or industrial accident. It had its birth in the chance location of a body of settlers. It became a city because it could not help it. The German city, on the other hand, was either a fortress, a Hauptstadt, or an industrial community, like the cities of the lower Rhine in the neighborhood of Essen, Elberfeld, or Barmen. Berlin, Munich, Dresden, Cologne, Mannheim, Düsseldorf, Hanover, and Strassburg were the seats of kingdoms, principalities, or bishoprics. Frankfort, Hamburg, Bremen, and Lübeck were free Hanseatic towns, owing allegiance to no one—proud of their mediæval traditions and jealous of their freedom.

Much of that which we admire in the German city is traceable to age.

All of these cities were enriched with valuable heritages from the past.

Rulers embellished their capitals in imitation of Paris. Some, like the kings of Bavaria, were themselves artistic and in love with things Hellenic. They erected palaces, art galleries, and museums. They laid out parks and palace gardens. They surrounded their cities with walls, which have been converted into park-like Ring Strassen in Vienna, Frankfort, Cologne, Bremen, Düsseldorf, and elsewhere. The German city was rich in art when the industrial revolution made its appearance. When the factory came there was only the outskirts for workshops. The heart of the city remained as it was when the city was a market-place, a fortified town, or the residence of a prince. And the old has continued to control the new.

In America we have no such traditions or monuments. Our only memories are those of shops, mills, and factories ever repeating themselves like the concentric rings of a growing tree. Few men have any other idea of the city than this. In addition, all of the work of the American city had to be done at once. Streets and sewers had to be built. Gas, water, electric light, telegraph, and telephone wires, mains and conduits had to be laid, while schools, station houses, and public structures had to be erected merely to keep pace with the inrush of people. Our officials were swamped with elemental needs. They had no traditions, no experience, to guide them. They had no time to dream dreams. They were driven, like the pioneer, by the fear of the coming winter. These things must be borne in mind in any criticism of the disorderliness of the American city or in any comparison with the cities of other lands. Our cities were born but yesterday,

and they have the rough-hewn finish of their age.

But the foundations are now in. We are in a position to look about us. And everywhere there are signs that democracy is dissatisfied with its cyclone-proof cellar. Washington, New York, Cleveland, Chicago, Denver, Kansas City, San Francisco, Baltimore, St. Louis, and Pittsburg are planning to rebuild their cities and to relieve its disorderliness with parks, public structures, and open spaces, while democracy is seeking to find more efficient tools for the doing of its work. The next generation is bound to see tremendous advance in things municipal. And it is to Germany rather than to England or France that we must go for our models.

I have said that the city was but a cross-section of the country in which it is found. It reflects the political, social, educational, and moral life of the people. Yet the German city, in spite of the autocratic personal government of the Kaiser, is free, almost as free in its local affairs as were the Free Cities of the Middle Ages, which became the centres of liberty and culture during the centuries when civilization had almost vanished from the earth. The German city, it is true, is subject to visitation by the State. There are some limitations on its indebtedness, the method of raising revenues, and the choice of mayors. But in the main it is free—free to dream big dreams, and when they are ready for realization, to achieve them and enjoy the fruits thereof.

The American city, on the other hand, is in chains. It has great power for evil and but limited power for good. Our cities are not permitted to

become great if they can, from the fear that they may make mistakes in so doing. The German city, on the other hand, has almost complete autonomy. It can own, operate, lease, or regulate the franchise corporations which occupy its streets. And it very generally owns them. It can enter trade and industry. It may even invest public funds in private ventures which lie close to the life of the community. It builds tenements and cottages, and regulates the private owner so that his structures will not be a menace to the city. It owns great blocks of lands within its limits as well as magnificent woods and forests in the surrounding country. It almost always has a monopoly of the slaughter-houses; it carries on restaurants and rathskellers; it builds and operates opera-houses, theatres, concert halls, palm gardens, and milk depots. It even speculates on a large scale in real estate in order to keep down the price of land and enjoy a portion of the "unearned increment" which the growth of the city creates. In the field of education it can do practically as it wills, after it has met the minimum standard set up by the State. Among the larger cities there is the keenest rivalry in all these things, especially in the promotion of commercial, technical and artistic education.

The American city is bound, as was Gulliver by the Liliputians, with a thousand thongs. It has to secure the assent of suspicious farmers and hostile financial interests, before it can change the wages or salaries of its officials or alter the method of police administration. Its control over tenements, slums, and franchise corporations is generally such as the owners

of these properties see fit to permit. Usually the power which is granted is just the power which the city cannot use, or it is conceded so late that the evil cannot be corrected at all or at too great expense to be attempted. The city may not lay out playgrounds, it may not erect bath-houses or comfort stations, it may not supply schoolbooks, nor feed hungry school-children without the consent of the State, which has no knowledge of its local needs. It must let out its work by contract, and in some instances spend more for the advertising than for the job itself. The tax rate is limited, as is the amount of the bonded indebtedness. The city may be ruined by inadequate terminal facilities, its citizens may be killed by surface crossings, and its trade destroyed by railway discriminations for the advantage of the private speculator. Its water front may be monopolized by hostile interests which refuse to develop it, as is the case with almost all of our lake and river cities. In all these relations the city is helpless. Its unvoiced needs are given less consideration at the State capitol than the demands of any one of a hundred special interests. It is this that strangles the American city; this more than corruption, bad charters or dishonest men. In addition to this, the tools by which the city is governed are often consciously designed to be unworkable by the people themselves.

The great cities of the world have been free cities. They have been free to think as cities, to develop a local pride and consciousness, to call the best talent of the community to themselves. The Greek cities were autonomous. The splendid cities of mediaeval Italy were republics. The

towns which spread like a network over the face of Europe during the Middle Ages were free cities. And the greatest cities of the present century, the cities of Germany, are free in much the same sense. They enjoy the largest amount of home rule. Each of them is an experimental station. And the achievements of one are speedily carried on to the rest.

The German city has no mayor. It has an Oberbürgermeister, who corresponds roughly to our mayor. His legal authority is far less than that enjoyed by the patriarchal executives of New York, Baltimore or Boston. In desperation over our inability to watch a hundred men we decided to watch but one. In order to escape from a troublesome council we threw ourselves into the hands of an all-powerful executive. But we did not insist that the despot should be an enlightened one or should know anything more about the government of a city than the council which we discarded. He need only be an active politician, an ambitious business man, or an aggressive leader.

The head of the German city is an expert. Both the Oberbürgermeister and the assistant Bürgermeister make a profession of their callings. Nobody knows to what party they belong. And nobody really cares. They

are like the managers of a great business concern and are employed by the city council for that purpose, much as they might be employed to manage a railroad. The present Mayor of Berlin was a lawyer in Breslau. He was selected to the council of the latter city, became interested in city administration, and determined to make city administration a profession. He was chosen for a subordinate post and made such a success that he was called to the mayoralty of Berlin, where he has been for many years. Dr. Adickes, the Oberbürgermeister of Frankfurt, has occupied that post for a quarter of a century. Few men in Germany can point to a life of more conspicuous achievement than his. He recently declined a post in the Interior Department of Prussia. Oberbürgermeister Wilhelm Marx of Düsseldorf came to that city from a smaller town twenty years ago. He is a man of independent wealth. He rose to his present position and for twelve years has been mayor of the city. During these years he has builded as did Pericles in Athens and the Medici in Florence. And he has made Düsseldorf one of the most finished cities in the world.

(To be continued)

EXCERPT FROM THE OPINION OF MAX THELAN, ATTORNEY FOR THE RAILROAD COMMISSION, ON POWERS OF SAID COM- MISSION AND INCORPORATED CITIES AND TOWNS OVER PUBLIC UTILITIES

May 2, 1912.
Railroad Commission of the State of California.

Gentlemen: In reply to your in-

quiry as to the powers over public utilities possessed by the Railroad Commission and the incorporated cities and towns of the State, respect-

ively. I present this opinion. I shall consider the subject under the following heads: (1) The line of demarcation; (2) Powers vested in incorporated cities and towns; (3) Powers vested in Railroad Commission.

I. THE LINE OF DEMARCATION

Acting under the provisions of Section 23, Article XII of the Constitution, as amended, the legislature of this State at its extraordinary session in 1911 passed the Public Utilities Act, which was approved by Governor Johnson on December 23, 1911, and became effective on March 23, 1912. This act confers upon the Railroad Commission very broad powers of regulation and control over the public utilities of this State. Public utilities are defined to include corporations, companies, associations, copartnerships, firms and persons owning, controlling, operating, or managing railroads; express and car companies; vessels regularly operating between points within this State; pipe lines; gas plants; electric plants; telephone lines; telegraph lines; water systems; public wharves; and public warehouses. Over public utilities, so defined, the Railroad Commission is given very wide power. The Commission is given power, among others—

(a) To fix rates, fares, charges and classifications.

(b) To establish through routes and joint rates, fares and charges.

(c) To investigate all interstate rates, fares and charges affecting this State and to apply to the Interstate Commerce Commission or to any court of competent jurisdiction for relief.

(d) To prescribe just, reasonable, safe and proper service, equipment, facilities and methods.

(e) To prescribe additions, extensions, repairs and improvements.

(f) To direct that additional cars or trains be operated and that trains stop with greater frequency and at proper places.

(g) To direct connections, in proper cases between the tracks of railroad or street railroad corporations.

(h) To direct, in proper cases, that switch connections and spurs be installed.

(i) To direct that physical connections and joint rates over two or more telephone or telegraph lines be established in specified cases.

(j) To direct the use, in proper cases, by one public utility of a part of the property of another utility, on, over or under any street or highway.

(k) To direct the installation of safety appliances and other devices to safeguard the health and safety of employees, patrons and the public.

(l) To regulate crossings of railroad tracks and streets or highways in specified cases.

(m) To investigate the cause of accidents and to take steps to prevent their recurrence.

(n) To provide demurrage rules, and rules for the collection and delivery of express packages and telephone and telegraph messages.

(o) To fix standards, classifications, measurements and practices of gas, electrical and water corporations.

(p) To ascertain the value of the property of every public utility.

(q) To establish uniform systems of accounts for each class of public utility.

(r) To permit or refuse to permit new street railroad, gas electrical telephone or water corporations to en-

ter a field already served by an existing corporation of like kind.

(s) To permit or refuse to permit corporations mentioned in (r) to exercise rights under new franchises or permits.

(t) To regulate transfers of the property used in the public service of public utilities, except express corporations, wharfingers and warehousemen, and the acquisition by one public utility of stock in another public utility.

(u) To regulate and control the issues of stocks, bonds and other evidences of indebtedness of all public utilities within the State.

While the language in which these powers are conferred upon the Railroad Commission is broad and general in its terms, it is clear that the legislature could not confer upon the Railroad Commission powers in excess of those authorized by the Constitution. Section 23 of article XII of the Constitution, after declaring that "From and after the passage by the legislature of laws conferring powers upon the railroad commission respecting public utilities, all powers respecting such public utilities vested in boards of supervisors, or municipal councils, or other governing bodies of the several counties, cities and counties, cities and towns, in the State, or in any commission created by law and existing at the time of the passage of such laws, shall cease in so far as such powers shall conflict with the powers so conferred upon the railroad commission," contains the specific proviso "that this section shall not affect such powers of control over any public utility vested in any city and county, or incorporated city or town as, at an election to be held pursuant to laws to be passed

hereafter by the legislature, a majority of the qualified electors voting thereon of such city and county, or incorporated city or town, shall vote to retain." Then follows the very significant clause "and until such election such powers shall continue unimpaired." This language is somewhat ambiguous in that it does not state clearly whether such powers are to "continue unimpaired" in the incorporated cities and towns (including here, as elsewhere in this opinion, the city and county of San Francisco) or in the Railroad Commission. However, every one who is familiar with the proceedings before the legislature of 1911 in its regular session, in connection with the submission of the amendment to section 23 of article XII of the Constitution, knows that it was the intention of the legislature that the respective incorporated cities and towns of the State should retain their powers over public utilities until the electors, if they so desired, should vote to confer them upon the Railroad Commission. When the legislature thereafter in December, 1911, passed the Public Utilities Act, it placed its construction upon this language by providing in section 82 of the act that "until such election such powers shall continue unimpaired in such city and county or incorporated city or town." I have no doubt that the courts, if called upon to construe the language of the Constitution, would give to it the same construction which the legislature has given to it. Consequently I am of the opinion that the incorporated cities and towns of the State retain the powers over public utilities with which they were vested, while the Railroad Commission in addition to securing authority over all public utilities in

unincorporated territory, also has become vested with broad powers, not heretofore vested in incorporated cities and towns, over public utilities situated within the limits of such incorporated cities and towns, and the incorporated cities and towns of the State now retain all powers over public utilities with which they were vested on March 23, 1912, the effective date of the Public Utilities Act. The answer to your inquiry hence depends upon the answer to this preliminary question: "What powers over public utilities were vested in the various incorporated cities and towns of the State on March 23, 1912?" If these powers are ascertained and then subtracted from the broad powers conferred by the Public Utilities Act on the Railroad Commission, the residuum will be the power of the Railroad Commission over the public utilities of any given incorporated city or town.

I shall proceed now to point out the powers over public utilities which were vested in the various incorporated cities and towns of this State on March 23, 1912.

II. POWERS VESTED IN INCORPORATED CITIES AND TOWNS

That the municipalities of this State have only such powers over public utilities as have been delegated to them either expressly or by necessary implication, either by the constitution or by legislative enactment, is too clear to call for a citation of authorities. I shall consider first the constitutional provisions and then the legislative acts

1. Constitutional Provisions

The following provisions of the Constitution of this State contain delegations of power over public utili-

ties to the cities and towns of the State—

(a) Section 11 of article XI.

(b) Section 19 of article XI.

(c) Section 1 of article XIV.

I shall consider these sections serially.

Section 11 of Article XI

Section 11 of article XI of the Constitution of this State reads as follows:

"Any county, city, town or township may make and enforce within its limits all such local, police, sanitary and other regulations as are not in conflict with general laws."

The extent of the powers delegated by this section is not free from doubt. The words "police power" or "police regulations" are sometimes used to include power over peace, order, safety, health and morals and at times in a broader sense to include anything which affects the general welfare, including the power to fix the rates and otherwise regulate public utilities. That the power of the state to establish the rates of public utilities and otherwise to regulate them is referable to the police power is established by the leading case of *Munn vs. Illinois*, 94 U. S. 113, and the cases which have followed in its wake. However, it is one thing for the State, acting under its police power, to regulate public utilities, and quite a different thing for a municipality to do the same thing. As Wyman says in his recent book on "Public Service Corporations," volume I, section 1410:

"The legislature may by statute confer the power of fixing rates upon counties, cities, or villages, or any such bodies as constitute local governments; and the powers so conferred may be exercised by the body named in accordance with the terms of the statute. The power is derived solely from the statute; and in the absence of

such authority there is no power inherent in a municipal corporation to regulate the rates of public service corporations. Nor is the power involved in the police power, the licensing power or the general power to regulate corporations using the streets."

Mills vs. City of Chicago, 127 Fed. 731, where it is held that a clause in the charter of Chicago, granting to the city the right to "regulate the police of the city or village and pass and enforce all necessary police ordinances" did not give to the city the power to pass an ordinance establishing a maximum 75-cent rate for gas; and *Bluefield Waterworks and Improvement Co. vs. City of Bluefield*, 70 S. E. 772, a West Virginia case, where the court says, at page 775:

"Power to conserve the health, comfort, happiness, and convenience of the inhabitants of a city, as defined by the courts, does not include power to determine in what manner one citizen may deal with another or on what terms they shall contract for particular services. This delegation of legislative power is entirely too general and indefinite to include matters of that kind. A general welfare clause does not extend beyond the police powers ordinarily vested in municipal corporations. *Tiedemann Municipal Corporations*, Sec. 135."

It should also be borne in mind in this connection that if section 11 of article XI be construed to confer upon the municipalities of the State the power to regulate the rates of public utilities, section 19 of article XI would be surplusage in so far as it confers upon municipalities the power to regulate the charges for the public services therein specified, as would also section 1 of article XIV, in so far as it

confers upon counties, cities and towns the right to determine the rates of compensation for the use of water. Likewise the provisions in numerous city charters conferring upon cities power to regulate the rates and often the service of public utilities would be works of supererogation. As indicating the view which the bench and bar of this State have taken concerning the meaning of this section, I would say that I have been unable to find a single case in which a municipality in this State has fixed a rate or regulated the service of any public utility, in reliance on this section of the Constitution. I am not unmindful of the dictum in the case of *Denninger vs. Recorder's Court of Pomona*, 145 Cal. 629, to the effect that the city of Pomona had power under this section to pass an ordinance prescribing the maximum price of gas. The court itself clearly regarded its language in this respect as dictum and placed its decision squarely on the provisions of section 19 of the same article, specifically providing that "the municipal government shall have the right to regulate the charges for * * * gas light or other illuminating light." In view of the authorities hereinbefore referred to and the other considerations presented, I cannot believe that a general delegation of the right to make and enforce "local, police, sanitary and other regulations" carries with it the power to fix the rates or regulate the service of public utilities. In so far as public utilities are concerned this delegation of power affects principally the use of the streets in matters such as construction on or under or across streets, control over overhead wires and the regulation of the speed of trains within the city limits. If it had

been intended to confer the power to fix the rates or regulate the service of public utilities, that power would have been expressly conferred, as was done with reference to the rates of certain classes of public utilities in section 19 of article XI and section 1 of XIV of the Constitution.

Section 19 of Article XI.

On October 10, 1911, Sec. 19, article XI, was amended so as to read as follows:

"Sec. 19. Any municipal corporation may establish and operate public works for supplying its inhabitants with light, water, power, heat, transportation, telephone service or other means of communication. Such works may be acquired by original construction or by the purchase of existing works, including their franchises, or both. Persons or corporations may establish and operate works for supplying the inhabitants with such services upon such conditions and under such regulations as the municipality may prescribe under its organic law, on condition that the municipal government shall have the right to regulate the charges thereof. A municipal corporation may furnish such services to inhabitants outside its boundaries; provided, that it shall not furnish any service to the inhabitants of any municipality owning or operating works supplying the same service to such inhabitants, without the consent of such other municipality, expressed by ordinance."

The portion of the section, as so amended, which has bearing on the present inquiry, is the third sentence of the section, reading as follows:

"Persons or corporations may establish and operate works for supplying the inhabitants with such services

(i. e. light, water, power, heat, transportation, telephone service or other means of communication) upon such conditions and under such regulations as the municipality may prescribe under its organic law on condition that the municipal government shall have the right to regulate the charges thereof."

I am of the opinion that under this section the incorporated cities and towns of the State were on October 10, 1911, and are now vested with power to regulate the rates of charges for light, water, power, heat, transportation, telephone service or other means of communication in so far as the service is rendered within the limits of the city or town, subject to what I shall say hereafter as to "railroad and other transportation companies," as those words are used in section 22 of article XII of the Constitution of this State. Ambiguity results from the fact that the words "may establish and operate works" may be held to look to the future alone. The result of such a construction would be that an incorporated city or town would have the right to fix the rate for gas, we will say, where the works are both established and operated subsequent to October 10, 1911; that no such right would exist as to works established and operated prior to October 10, 1911; and that as to works established and operated prior to said date but extended subsequently thereto, the power to fix the rate would adhere in the municipality as to service from the extension but not from the original works. Such an interpretation would work hopeless confusion and should not be adopted unless absolutely necessary. In my opinion the words "establish and operate" should be construed to read "es-

establish or operate," so as to give to the respective incorporated cities and towns the power to regulate the charges for the kinds of services hereinbefore specified both as to works constructed prior to October 10, 1911, and those constructed or extended subsequent to said date. **It should be noted, however, that the power so conferred is confined to rates, and does not affect service, equipment or facilities or the power to compel the construction of extensions.**

Section 1 of Article XIV

Under Section 1 of Article XIV of the Constitution the incorporated cities and towns of the State have had and now continue to have the power to establish rates for the use of water. This power had already been conferred by section 19 of article XI of the Constitution. In so far as unincorporated territory is concerned this power is now, under the provisions of section 23 of article XII of the Constitution, vested in the Railroad Commission.

2. Legislative Enactments

The powers which have been conferred by the legislature upon incorporated cities and towns are to be found in their charters, where such have been granted, and in the general statutes.

Very few cities, if any, have the power to compel the construction of extensions or the installation of physical connections between railroad, street railroad, telegraph or telephone companies.

The great majority of the incorporated cities and towns of the State have been incorporated under the Municipal Corporations Act as cities or towns of the fifth or sixth class, and do not have special charters. Of some

two hundred incorporated cities and towns in 1909, all except some thirty-three were incorporated as cities or towns of the fifth or sixth class. The Municipal Corporations Act does not in terms confer upon such cities and towns any powers over public utilities. The power to fix water rates, referred to in the Statutes of 1881, page 54, had already been delegated by section 19 of article XI and section 1 of article XIV of the Constitution of this State. I have been unable to find any powers over public utilities which have been conferred by the general statutes upon incorporated cities and towns in excess of the powers delegated by the Constitution directly to all cities and towns of the State and hereinbefore specified.

By way of summary of this branch of my investigation, I would say that the incorporated cities and towns of the State had vested in them on March 23, 1912, and now have vested in them the following powers over public utilities:

(a) By direct grant from the Constitution—the power (1) to exercise "the police powers ordinarily vested in municipal corporations," being as to public utilities chiefly the power to regulate the use of the streets, and (2) to regulate the rates for light, water, power, heat, transportation, telephone service or other means of communication, in so far as such services are rendered within the limits of the city or town, subject to what I shall say hereafter as to "railroad and other transportation companies."

(b) By legislative enactment—the powers specifically conferred in the charters referred to in the statement hereto annexed, which powers are in

but few cases in addition to the powers conferred by the Constitution itself.

III. Powers Vested in Railroad Commission.

As already stated, the Railroad Commission now has all the powers enumerated in the Public Utilities Act except such powers as on March 23, 1912, were vested in the incorporated cities and towns of the State

Street Railroad Corporations.

The Constitution of 1879 did not confer on the Railroad Commission the power to fix the fares of street railroad corporations. See **Market Street Railway Company case, supra**. Some cities have heretofore secured this power by provisions in their charters. By virtue of the provision of section 19 of article XI of the Constitution, as amended on October 10, 1911, conferring upon municipalities the right to regulate the charges for "transportation," all incorporated cities and towns now have this power. The cities and towns have never had the power to fix the fares for transportation between a point within their limits and points outside. That power, under the provisions of the Public Utilities Act, now vests in the Railroad Commission. Likewise, as to service, equipment, facilities and extensions of street railroad corporations, the power vests in the Railroad Commission except to the extent that the cities are by their charters vested therewith. It should be noted that the powers over crossings conferred upon the Railroad Commission by section 43 of the Public Utilities Act do not cover the case in which a street railroad track crosses a street within a municipality or vice versa.

Gas Corporations.

Electrical Corporations.

Ever since 1879, the cities and towns of this State have had the power, under section 19 of article XI of the Constitution, to regulate the charges for "gaslight or other illuminating light" supplied within their limits. This authority did not extend to charges for power, but this matter is now specifically covered by said section as amended on October 10, 1911. It follows that the incorporated cities and towns of the State have the power to regulate the charges for the service within their limits of both gas and electrical corporations. In all other territory, this power is vested in the Railroad Commission. With reference to service, equipment, facilities and extensions, all powers not vested in incorporated cities and towns under their charters or under the power to make police regulations are vested in the Railroad Commission.

Telephone Corporations.

Telegraph Corporations.

Section 19 of article XI of the Constitution as amended on October 10, 1911, grants to municipal corporations the right to regulate the charges for "telephone service or other means of communication." It follows that the incorporated cities and towns have the power to regulate the rates for telephone service where the service is limited by the boundaries of such cities and towns. In all other cases the Railroad Commission has the power to fix charges; as, between a point within an incorporated city or town and a point outside. With reference to service, equipment, facilities and extensions, the remarks on the same

subject as to gas and electrical corporations are applicable here.

Water Corporations.

Under both section 19 of article XI and section 1 of article XIV of the Constitution, the municipalities of the State have since 1879 had the power

to fix the charges for water. This power they still retain. What I have said as to gas, electrical, telephone and telegraph corporations as to service, equipment, facilities and extensions applies equally to water corporations.



EFFICIENT ANTI-FLY CAMPAIGNS

WRITTEN EXPRESSLY FOR "PACIFIC MUNICIPALITIES" BY HAROLD S. GRAY, M. S., SPECIALIST ON SANITATION, BERKELEY, CAL.

EDITOR'S NOTE.—Harold Farnsworth Gray, aged 27, was graduated from the University of California in May, 1907, in Sanitary Engineering. For the next three years he was engaged in engineering work with such companies as the Peoples Water Co. of Oakland, the Los Angeles Aqueduct, and the Sacramento Valley Irrigation Co. He then took up the subject of public health specifically, being in charge of the anti-malaria campaign at Penryn, Placer Co., and Oroville. At the same time he prosecuted advanced studies in the University of California, and was given the degree of Master of Science in May, 1912. Since August, 1911, he has been engaged in private practice as a public health expert, and has investigated and reported upon problems concerning the improvement of the public health in different localities, notably the University Farm at Davis, the Los Molinos Land Co., and the City of Redding. For the past two years he has been a lecturer on public health on the Agricultural Demonstration Train of the University of California. He is a member of the American Public Health Association.

About ten years ago there was on the market a certain guaranteed potato-bug killer, which was widely advertised. The farmer who sent for it received by mail, for the sum of one dollar, two pieces of wood, with instructions to place the bug on one piece, and strike it forcibly with the other. The usual anti-fly campaign is about as efficient in ridding a town of flies as this potato-bug killer was in exterminating all the potato-bugs on a ranch.

The reason for the inefficiency is found in the lack of knowledge on the part of the majority of citizens as to the most effective and economical procedure. To them, exterminating the fly means killing the adult flies

that they see buzzing around their homes. They would treat, so to speak, the symptoms, not the cause. They get the cart before the horse.

The wise general, in planning a campaign of war, seeks out the weakness of his enemy, and concentrates his forces at that point. So with the house-fly, the enemy of mankind, we should seek his weakness, concentrate our efforts for his destruction at that point, and thus cause the greatest mortality with the least possible expenditure of time, effort and money.

The best place to begin an anti-fly campaign is in the public schools, in the form of lectures to the children on the subject. These lectures should be a part of a general course in public

health, delivered preferably by some physician who is well abreast of modern progress in preventative medicine, hygiene and sanitation. The lectures should be illustrated by lantern slides, motion pictures, the microscope, and, in the case of flies, by the actual breeding of flies in the classroom.

The children will take home with them the information they have received, and, in turn, the parents will become gradually interested and educated on the subject. I know of at least one instance in California (the City of Redding) where, as a result of such lectures in the high school, the citizens demanded of their city officials that they improve the sanitary condition of their city, and especially that they take steps to exterminate flies and mosquitos. Anti-fly campaigns in many cities have been made a success only through the education of the school children, who have, in turn, educated their parents.

This instruction paves the way for public lectures to the citizens, before their clubs, societies and organizations, and the subsequent organization of the campaign. In all this work the daily newspaper is a very great factor, and should be kept supplied with publicity articles at once interesting and exact as to the facts. No campaign will be a permanent success unless it is based on a policy of education. The people must be brought to the point where the great majority realize the necessity of the extermination of the fly.

With the demand for fly extermination created, the next step is to find out what is necessary and expedient, and how best to get results. This is accomplished by what is known as a "sanitary survey," which is an inspec-

tion of the city by a competent and unbiased expert, who locates the breeding places of the flies, determines the character of the breeding places and the most effective methods of preventing fly breeding, studies the various places from which the fly may derive the disease germs which it transmits, together with the possibility of infected flies carrying disease germs to human beings, all under the local conditions. In addition, he studies the local health ordinances, to ascertain whether they will be adequate to deal with the situation **if enforced**, and to indicate needed revision and additions. It has been my experience, however, that the majority of cities in this State have ordinances which are sufficient for the purpose, but they must be rigidly and intelligently enforced. The fly is no respecter of the law, and merely passing ordinances will never drive it out of town.

Besides these matters, an estimate is made of the cost of the campaign, adjusted to the ability of the community to meet the expense. No community should attempt an anti-fly campaign until three things have been demonstrated; first, that under their local conditions the fly is an appreciable transmitter of disease; secondly, that the house-fly causes an appreciable economic loss to the community, this loss to be estimated with reasonable accuracy; and third, that the cost of the anti-fly campaign will be sufficiently less than this economic loss to show a substantial yearly profit to the city as a result of fly extermination. But in every case that I have studied so far, the expense of the campaign has been small in actual amount and in comparison with the

benefits obtained. The added burden of taxation is negligible; the economic gain, the added comfort and health, and the decrease in the death rate are pronounced and invaluable.

On the basis of the facts determined by the survey, a definite plan of action is worked out by an expert, and funds being available, the active work of the campaign begins. This work falls naturally into four divisions. First and fundamentally is the abolishment or treatment of fly-breeding places, such as manure piles, garbage heaps, excrement and filth. Second, and hardly less in importance, are measures to prevent access of flies to material infected with disease germs, especially human excrement in such places as open privies or toilets. Third comes the matter of protecting the food supply from contamination by infected flies, both in the stores and markets, and in the home. Last of all in importance and effectiveness is the destruction of the adult fly by traps, sticky fly-papers and poisons. The common method of offering prizes for the greatest number of flies caught in a certain number of days really does more harm than good, for the actual reduction in the number of flies, even if appreciable, is only temporary, and the method lays undue emphasis on the least effective way of killing flies. One might as well try to sweep back the ocean waves with a broom as try to exterminate the fly by killing only the adults and at the same time leave untouched places which are breeding them actually by the million. It is possible for a single pair of flies to have 5,598,720,000,000 descendants during a single season. The probable amount under average conditions is perhaps 6,000,000. In localities where

the winters are cold, with snow on the ground, trapping flies extensively in the spring may produce a marked reduction in the number of flies during the entire summer, but in California, where the winters are mild and flies breed the year around, such trapping cannot be considered as either effective or economical.

Get to the root of the evil. Swat the fly, yes, but swat him intelligently, in the places where he breeds. Get rid of the breeding places. It is actually more expensive to treat manure piles and garbage heaps with chemicals to kill the fly maggots than it is to do away with such material completely.

In the summer, when the breeding season is in full swing, it is wasted effort, time and money to attempt to get rid of the flies by killing the adult flies, except such as are found within your own home. Use, so to speak, the method of Herod, and strangle them in their infancy. If there are but few and scattered places for the flies to breed, the flies must perforce be few and scattered. In Berkeley, where fly extermination is a definite part of the program of the Health Department, the only measure attempted is the abolishing of breeding places. Come to Berkeley and see how few the flies are, except in the vicinity of a few places which apparently succeed in evading or defying the law.

To exterminate the flies in any city, some one must be responsible for the conduct of the campaign and the enforcement of the sanitary ordinances. This man must be trained for this work, and must know his business thoroughly if results are to be obtained. Often it requires the most painstaking and minute search to find

the reason for the prevalence of flies in a certain locality within a city. An untrained man would waste time and therefore money searching in unlikely places, and many times may not locate the source of the flies at all. Not only is money thus wasted, but results that a city has a right to expect are not obtained.

A properly conducted campaign

against the flies does far more than practically exterminate the flies, desirable as that is. It gives your city a thorough cleaning, and removes many potent sources of infection. It gives you a town that you may be proud of, that attracts desirable residents. It gives you a healthy, and therefore a prosperous, community. The benefits can hardly be estimated.



FINANCING STREET IMPROVEMENTS

A Laudatory Comment on the System Used in Utica, N. Y.

By George C. Warren

George C. Warren, a former resident of Utica, N. Y., attended, last week, the national conference on city planning, held in Boston, where he is now a resident, and after listening to the discussions and the papers read, came to the conclusion that not many cities in this country or Canada excel Utica in their financial systems, especially as regards paying for pavements. What he has to say in this connection is highly complimentary to this city and generally instructive. His statement follows:

"Last week the fourth national conference on city planning was held in Boston and it proved a most interesting and instructive occasion. The conference most energetically pressed the advantages of better and more parks, boulevards, roadways, pavements and all public utilities and the best and most economical means of their accomplishment.

"One morning was devoted to discussions of the matter of the best and most economical means of payment for

such public improvements and most excellent papers were read by Nelson P. Lewis, chief engineer of the Board of Estimate and Apportionment of New York City, and James A. Gallivan, street commissioner of Boston, on the subject, "Paying the Bills for City Improvements." Hon. Lawson Purdy, President Department of Taxes and Assessments, New York City, presided and added much to the valuable thought of the papers and discussion following.

"During the discussion my thought went back with pride to the city of Utica, which after 15 years of residence and only pleasant recollections, I was obliged to leave on account of reorganization of my business interests. My pride was not only because as the discussion went on it appeared to me that, Utica the city of my former home, had, it seems to me, accomplished a most sane and wise financial system in connection with payment for public improvements but also because in the early days, 20 to 25 years

ago, I had some small part in the formulating of that scheme of finance.

"Perhaps many of the taxpayers of Utica did not really appreciate how highly they are favored in this respect as those of us do whose business is such that we have opportunity to observe the systems in vogue in other communities and favored with attendance at such conventions and conferences as that held this week in Boston above referred to. I therefore take occasion through your columns to show the Utica taxpayers that they are most highly favored.

"I refer particularly to the matter of meeting the cost of construction and maintenance of street improvements.

"In **Boston** the cost of the first improvement is assessed on the abutting property and all subsequent repairs and renewals are paid for from the general budget. The results are:

"First, the almost universal tendency of property owners to accept the cheapest form of roadway and sidewalk construction which can be laid. Only last week in connection with the opening of a street in which I am interested the other abutters favored gravel roadway and sidewalk, and when I protested that this class of construction is entirely inadequate to meet modern traffic conditions they said: 'But the city must keep the road in repair and if later a better class of improvement is necessary we will not be assessed for the cost.'

Second, there are so many miles of roadway thus inadequately improved that it is impossible for the city, out of its limited tax budget and limit of bonded indebtedness, to lay modern pavements to anything like the extent they should be laid to meet present traffic and economic conditions and at

the same time meet the enormous expense necessary to keep the old roadways in safe, passable condition.

"**New York City** has much the same law as Boston with respect to initial assessments and subsequent maintenance of the pavements with the result, like Boston, that almost universally the initial pavement adopted was gravel or stone macadam and other cheap type of construction.

"New York, however, has more generally succeeded in the reconstruction of pavements with those of more modern type, but has done this through the issuance of millions and millions of bonds for long terms of years—very much longer than the reasonable life of pavements under the prevailing traffic conditions. Until now it has been publicly stated that New York has many miles of streets which have been reconstructed two and sometimes three times out of the proceeds of such long time bond issues the first of which successive bond issues are not yet paid for.

"In **St. Louis** the entire cost of all street pavements and renewals are assessed on the abutter and the contractor is given 'tax bills' against each individual parcel with interest at seven per cent. Although the interest is at a high rate, and although the tax bill is a lien which takes precedence over mortgages and all other such liabilities except city taxes, thus providing

the very best security, the tax bills are not salable, except at a heavy discount, because investors generally do not want to carry paper, the collection of which requires so much red tape, and which is issued in such odd amounts (many of them quite small) payable in annual installments.

"These are three extreme examples

of what seem to me to be very unwise systems of financing public improvements. Between them there are all shades of variation in vogue, some of them such that the contractor has to discount the municipal paper given him in payment of his work as much as 15 per cent, all of which, it is needless to say, comes out of the pockets of the taxpayers in either higher cost of work or poorer construction, or both, and certainly provides a most unwise system of finance.

"Contrast this with the safe, sane, equitable, easy system now in vogue for 25 years in Utica and note the practical result under that system, which briefly stated, is as follows:

"1. The city pays one-third the cost of all original pavements and all renewals thereof and provides for this out of the annual tax budget, the paving fund thus created being an annual tax of less than an average of \$1 per capita of population, which is not enough to hurt any.

"2. The remaining two-thirds of the cost of original pavements and all renewals is assessed on the abutting frontage, each individual person assessed being given the option of paying the whole or any part of his or her assessment in cash or deferring payment for six annual installments with six per cent interest. To cover the deferred assessments the city issues six paving bonds, each for one-sixth of the whole amount of such deferred assessments, and payable in one, two, three, four, five and six years with five per cent interest, the due dates of the bonds and assessments being co-incident. The city loses nothing on account of the credit it gives to the taxpayers and the premium the city gets for the bonds and the one per cent ex-

tra interest charged the taxpayers fully pays all clerical or other expense of the city in the transaction.

"3. The city at large pays for minor repairs required between the time of laying the original pavement and the necessity of reconstruction or resurfacing.

"The result of this system after 20 years practical trial (the varying charter amendments covering the system having been enacted, as I remember the dates, between the years 1886 and 1902), is that there are few cities in the United States and Canada which, as a whole, are as well paved today as is Utica, practically every street in the city now having a modern pavement and the work having been done so easily and steadily that no one has felt the financial burden.

"The practical working out of the system can be illustrated by the typical result on Oneida street, on which I am interested as an abutting taxpayer. In 1892 the street was newly paved at an annual cost of about \$200 per lot of 50 feet frontage, the assessment being payable in cash or at the option of each taxpayer in six annual installments of about \$33, with interest, say \$35 per year for six years including interest. The last installment of the assessment was paid in 1898. Then came 13 years respite and in 1911 the street was resurfaced at a cost of about \$90 for each lot of 50 feet frontage, or if any desired to pay in six annual installments at a cost including interest of less than \$16 per annum. It should be here noted that all this—a thoroughly well paved city—has been accomplished by a general tax of less than one dollar per capita per annum.

"Of course it may be properly said that in larger cities where traffic is

more congested that the relative cost would be somewhat greater and the necessity of pavement renewals, more frequent but it may also be said, in answer, that the renting and selling values in the larger cities are enough greater so that the relative burden of such a system could be no greater than in smaller cities.

"My contention is that the Utica system of financing for pavements is, with modification, easily and equitably adaptable to other cities and to nearly all other factors of the broad matter of 'City Planning'—parks, boulevards, pavements, sewers, shade trees, etc.—and that most municipalities of the United States and Canada can well look to 'Old Pent-up Utica' for some good, sound, sane lessons in municipal finance.

"Through the generosity and foresight of one of its most beloved and public spirited citizens Utica is favored with a park system, perhaps second to no other city of its size in this continent and has not, therefore, found it necessary to inaugurate a system of finance for its parks. Some other cities are similarly favored through generosity of its citizens, but all cities can not be so favored. All cities can, however, if they take up the matter before property values are too high lay out a system of parks and boulevards and other improvements on a basis of finance and assessments which is no financial load to any one and the value of which in a very few years will be hundreds of times the cost. The keen interest shown at the Fourth National Conference on City Planning, held at Boston, last week, and referred to at the opening of this communication, shows that the whole American continent is rapidly awakening to the real-

ization of the importance from both economic and humanitarian points of view of making cities, especially the large cities, more beautiful, livable and economic through the establishment of more and better parks, boulevards, tenements and other residences and the introduction of the artistic in all branches of 'City Planning,' which means all branches of municipal economy."



NOTICE TO TRAVELERS.

In response to many requests for information regarding the lifesaving equipment on Southern Pacific liners plying between New Orleans and New York, which are often used by travelers from California over the Sunset Route, the Passenger Department has issued the following statement:

"The Southern Pacific steamships are now, and always have been, equipped with a sufficient number of lifeboats to carry every passenger and member of the crew to safety in case of accident which, by the way, is extremely unlikely, owing to the intimate knowledge of the route possessed by all officers employed. Each ship is equipped with wireless and is in touch with shore stations during the entire voyage.

"In addition, notices are posted in all state-rooms, public rooms and steerage, showing the assignments of occupants to specific boats, and the boats are all plainly and conspicuously numbered so that no mistake could be made. Fire and boat drills are held the first day out and at every port of call. The passengers are cordially invited to participate in these drills. Stewards always instruct passengers how to adjust the individual life-belts and how to move through the water if necessary.

"These rules are not new, but have been in operation on the Southern Pacific boats for several years."



Q When a man feels the necessity of being in two places at the same time he goes to the nearest telephone and sends his voice. It is not exactly the same thing but when a man talks hundreds of miles in opposite directions from the same Bell Telephone, it is about as good. In the daily use of the telephone a man travels all over town by wire in a few minutes. It is just as easy to travel all over the state and other states by means of the universal Long Distance Service of the Bell System.



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QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry.

Q. When a street in a city of the sixth class is closed by the Board of Trustees, to whom does the property belong? Does it revert to the adjacent property owners or to the railroad company which formerly owned the land on which the city is situated? Or, can the City Trustees close the street and use the ground for municipal purposes?

Ans. The land formerly used as a street reverts to the owners in fee simple of the abutting property on each side of the street. The city has no right to the land and cannot use it for municipal purposes, unless perchance the city happens to be the own-

er of the street in fee; this is sometimes the case but not often. It is the case in San Francisco, where all persons laying out new tracts are required to give the city a deed in fee simple to the streets.

Q. Intake town water system in unsafe condition immediate action to repair seems very necessary can board of trustees proceed without being required to advertise, using surplus general fund contracting to pay balance next tax levy? Wire answer.

Ans. Under the circumstances believe you would be justified in proceeding immediately.

Q. We are taking steps toward building a library here and we want to do everything in a legal way, and if you will, I will appreciate it if you will give us some information in regard to the matter.

1st. Under what conditions do the City Trustees have the right to appoint a board of Library Trustees and how do they proceed in the matter?

2nd. When the library trustees purchase real estate for library purposes to whom is the property deeded?

3rd. Under the new law allowing a certain amount of taxes for library purposes would we be allowed to include territory outside of the city in our district?

4th. It is lawful to appoint some one who does not live within the city on the Library Board of Trustees?

Ans. 1. Upon being petitioned by one-fourth of the electors.

2. The municipality.

3. No.

4. No.

There are three different acts relating to free libraries, one, Act 1247, which relates to incorporated cities and towns exclusively; another, Act 1248, which provides a scheme for establishing free libraries in counties, and still another, Act 1249, which provides for the establishment of free libraries in districts and unincorporated towns. Your city would be governed by the provisions of the last first mentioned, to wit, Act 1247; it provides a scheme for loaning books to outsiders for a reasonable recompense to be established by the library trustees.

Q. We wish to find out the nearest Imhoff Tank or Septic Tank in successful operation conveying sewage for any municipality around the bay.

The Board of Trustees of this town are contemplating installing such a system to dispose of the sewage.

Ans. The nearest Imhoff tank, and in fact the only Imhoff tank in the State of California, is located

in the town of Winters. It was constructed almost a year ago but has only been in operation for two or three months. We are informed that it is working very successfully so far. Septic tanks, which are simply enlarged cesspools, are being operated with more or less success in the following municipalities around the bay: Concord (new tank), Healdsburg, Livermore, Lodi, Mountain View, Napa, Pleasanton, Santa Clara, Sebastopol, Sonoma, St. Helena and Vacaville.

Q. I am advocating a concrete pavement in this city, specifications for which you will find enclosed. This is meeting with considerable opposition, and I would like to have your opinion of it, and if same is a patented pavement.

I would also like any information you may be able to furnish me in regard to the use of concrete pavement in the West and especially in California?

Ans. We are inclined to think that your specifications infringe on either the "Dolarway" pavement or the "Chadbourne" patent pavement, but would not give a positive opinion on this question without more thorough investigation.

Concrete pavement has not been used to any great extent in the West. There has been some "Hassam" pavement laid in the State of Washington, but we do not believe it is regarded as a howling success. A small quantity of "Hassam" laid in Alameda County within the past three years is not holding up well.

Cement concrete, properly made, is by far the best and most durable material for constructing the base of a pavement. Although the first cost is somewhat high, reliable statistics prove beyond all question of doubt that the most durable and permanent

pavement is really the cheapest, when the cost is distributed over a period of ten years or more.

But why put a poor-wearing surface or a fine base? If the most durable and permanent base is really the most economical in the long run, would not the same reasoning logically apply to the wearing surface as well? We are inclined to believe that it is a mistake to put a poor wearing surface on a fine foundation, or vice versa, just as it would be to build a house with finest kind of a foundation and the cheapest kind of a roof. Is it not better to have a tight roof of the most permanent construction and one which will give satisfaction from

the beginning and not require repairs or replacement occasionally?

It is generally understood that concrete alone will not stand up very well under the blows of a horse's shoe and therefore should be protected with a surface which would serve as a cushion, and it would seem most economical and otherwise most desirable that this surface be of durable construction.

Q. Are cities required to close a street when it is being worked on?

Are they required to post signs of any kind, or give any kind of warning for same?

Ans. A city is not required to close a street when work is being done thereon. If the work is of such a na-

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ture as to constitute a danger to vehicles and pedestrians, and which would not be noticed easily, such as trenches, guards of some kind should be placed around the same and red lanterns displayed at night. If such reasonable precautions are taken the municipality cannot be held liable for injuries. If the work is given out to a contractor he is responsible unless he takes such precautions.

Q. Our city owns its own light and water systems. In selling current it is our custom to put in a meter, and in addition to the regular charge for current to charge also 25 cents per month rent of meter.

Is there any law which says that the consumer when he has paid rent sufficient to cover the price of the meter that the meter shall be his property?

Ans. There is no law which says that a meter shall become the property of a consumer when he has paid rents sufficient to cover the price of the same.

A minimum meter charge should not be regarded as rent for the meter. It is to cover, among other things, the interest on the money invested in meters, the cost of installing them, keeping them in repair and testing them occasionally. The imposing of a fixed meter charge is almost universal, both in public utility companies and municipally owned plants. It is justified also on the ground that the consumer has the service at hand ready for him to use whenever he sees fit, and this is something of value which he should pay for, as a sufficient plant has to be maintained to be ready to supply him at a moment's notice.

Q. Has a city the right to collect two per cent of the gross receipts of the earnings of a lighting company if it was made part of the ordinance granting the franchise to the company, if it was lawful at that time which was about eight years ago, is it legal under the present law?

Ans. You still have the right to collect 2 per cent of the gross receipts of the earnings of a lighting company if this was a part of the ordinance granting the franchise and one of the considerations for which it was granted; you still retain the right to this 2 per cent notwithstanding changes which have been made in the laws relating to public utilities.

Q. Act 2334 authorizes the City Council to grant the right to property owners or to proprietors of industrial enterprises to construct, maintain and operate private spur tracks in the municipality, and I write to inquire if there is any special form of grant that has been adopted by California municipalities.

Ans. It is the practice of the legislative body of San Francisco to grant a revocable permit to parties desiring to operate private spur tracks; it is generally done by resolution.



STORM MAKES NATURAL BRIDGE

Corner Stuart and Louisiana Has Washout Which Made Natural Bridge of Paving

Last Sunday's storm made a natural bridge at the corner of Stuart and Louisiana when the water emptying into an excavation made by the gas company for the repairing of a broken main washed out the dirt beneath the street for a distance of 30 square feet, leaving the bitulithic paving laid some three years ago to stand as a natural bridge for the accommodation of the traffic.

The damage done was slight, only in that it necessitated opening the paving for some distance that the men might be able to make the fill. The company experienced some difficulty in making the opening because of the extreme hardness of the paving. Some idea may be gotten of the unequalled qualities of this paving from the fact that it took the combined efforts of two men wielding heavy sledges on a chilled steel cutter in order to make the opening necessary.

The edges of this opening were measured by some interested citizens who found that there had been no wear at all in the three years of wear given this particular street upon which the traffic is extremely heavy.

The wonderful qualities of this form of paving fully exemplified all claims made when it is understood that the paving without support of any kind has stood under the heavy traffic and automobiles which are constantly passing over it.—(Houston, Texas, Post, May 8, 1912.)

What the Cities are Doing

Redding is buying more fire hose.

Merced is planning a lot of street paving.

Benecia is advertising for a street sweeper.

Willits is planning to macadamize its main streets.

Watsonville fire chief reports the need of more fire hose.

Salinas is considering the installation of more fire hydrants.

Fowler has ordered the construction of more cement sidewalks.

Oroville intends to purchase an auto chemical and hose wagon.

Santa Barbara is buying a lot of pipe for its municipal water system.

Pasadena is about to install some more automobile public service wagons.

Hillsborough has called for bids to furnish an auto chemical fire engine.

Marysville has enforced the construction of a lot of cement sidewalks recently.

Pasadena has let a contract for the construction of an aviary in Central Park.

Oakland will have another combination police patrol and ambulance automobile.

Alameda will have an automobile truck for the use of its municipal lighting plant.

Santa Monica is considering a new charter embodying the commission form of government.

Lodi is doing a lot of street paving. Ten blocks have just been completed and more will be done.

Hanford may vote on the issuance of \$65,000 bonds for the improvement of its sewer system.

Antioch is considering a bond election for improving its water system, and build ing a town hall.

Redlands voted \$600,000 bonds on May 28, for the acquisition of a municipal water system. The bonds carried by a vote of 5 to 1.

Anaheim may purchase an auto truck and other fire equipment instead of constructing a building.

Placerville is considering the establishment of a municipal band to give concerts during the summer months.

Oroville is advertising for a motor driven combination chemical and hose wagon, bids to be received up to July 1.

Petaluma has advertised for a triple combination auto fire pump, hose wagon and chemical outfit, of 100 horse power.

Lindsay citizens, in mass meeting assembled, advocate a \$2,000,000 bond issue for Tulare County for good roads.

San Bernardino is threatened with the recall of one of its councilmen because he did not vote right on fixing gas rates.

Alhambra citizens are urging improvements in the way of parks, a large city hall, a public library and a garbage incinerator.

Hillsborough has called for bids for furnishing a motor driven chemical engine and hose wagon, and another bid for furnishing 1000 feet of fire hose.

Placerville will soon have a new county hospital occupying the site of the former structure. The plans have been accepted and work will commence at once.

Pasadena officials were recently petitioned to establish a municipal skating rink in the armory for the benefit of the children. By way of amendment, one of the officials suggested an out-door rink.

Ontario is contemplating the purchase of a lot of extra equipment for its fire department, including the installation of a fire alarm system and the purchase of a second automobile fire truck.

Bakersfield has voted bonds for the following improvements: \$210,000 for extension of the sewer system, \$150,000 for a city hall \$60,000 for the fire department, and \$27,000 for the East Bakersfield Library.

Colton is considering the purchase of an automobile fire truck and otherwise decreasing the fire hazard by further measures, including the construction of a reservoir. A bond issue is advocated by some citizens.

Taft trustees have called a bond election for the purpose of raising \$12,000 for more and better equipment for the fire department. Larger water mains will also be installed, in order to comply with the demands of the Fire Underwriters.

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

Write for Catalogs. Mention Pacific Municipalities When Writing

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S. F.

Asphalt Machinery

A. L. Young M'chy Co. 26-28 Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Arch. Terra Cotta

Gladding, McBean & Co., Crocker Bldg., S. F.
Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Automobile Public Service Wagons

American La France Fire Eng. Co., 660 Mission St., S. F.
Gorham Eng. & Fire App. Co., 48 Fremont S. F.
Webb Motor Fire Apparatus Co., 550 Montgomery St., S. F.

Bitulithic Pavement

Warren Brothers Company, Los Angeles, Cal.

Concrete Construction

Esterly Con. Co., Inc., 717 Market St., S. F.

Concrete Mixers

Barber Asphalt Paving Co., S. F. & L. A.
Parrott & Co., San Francisco & Los Angeles

Constructing Engineers

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.
American Engineering Corporation, 57 Post St., S. F.
Stephen E. Kieffer, 1st Natl. Bank, Oakland
Nelson & Piper, 618 Mchts Trust Bldg., L. A.
Roberts & Dennicke, Sheldon Bldg., S. F.
Shipman, Denny & Rhame, Atlas Bldg., S. F.

Culverts

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Standard Corrugated Pipe Co., S. F. & L. A.
U. S. Pipe Co., S. F.

Dump Carts and Wagons

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A. L. Young M'chy Co., Fremont St., S. F.

Engines

Dow-Williams Engine Co., Sheldon Bldg., S. F.

Engravers and Bond Printers

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Sierra Art Eng. Co., Front & Com. Sts., S. F.

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Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Engines

Gorham Eng & Fire App Co., 48 Fremont St S. F.

Fire Hose

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The Gutta Percha & Rubber Mfg. Co., 34 Fremont St., S. F.
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Eureka Fire Hose Mfg. Co., 54-58 Fremont St., S. F.
Bowers Rubber Works, San Francisco

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Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Pumps

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Gasoline Engines

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Hydrants

Water Works Supply Co., Monadnock Bldg., S. F.

Inspections and Tests

Robt. W. Hunt & Co., 418 Montgomery, S. F.
Smith, Emery & Co., 651 Howard St., S. F.

Municipal Accountant

William Dolge, C. P. A., 311 California St., S. F.

Municipal Castings

Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Pacific Foundry Co., 18th & Harrison, S. F.

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Smith, Emery & Co., 651 Howard St., S. F.

Municipal Printers

A. Carlisle & Co., 251-253 Bush St., S. F.

Municipal Water Works

Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Smith, Emery & Co., 651 Howard St., S. F.

Packings

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Standard Oil Co., S. F.

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Bowers Rubber Works, San Francisco

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Harold Farnsworth Gray, Berkeley, Cal.

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Pacific Flush Tank Co., Chicago.

Sewer Pipe and Terra Cotta

Gladding, McBean & Co., Crocker Bldg., S. F.

Steiger Terra Cotta Co., Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

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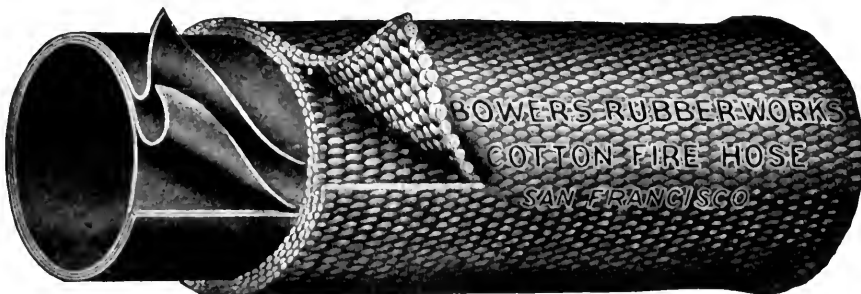
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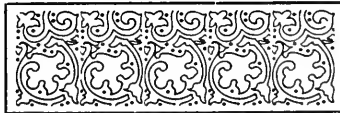
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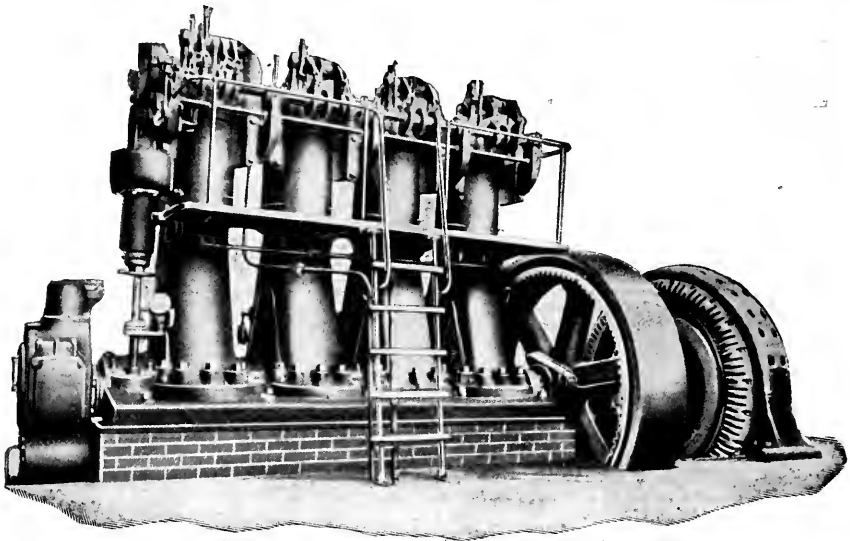
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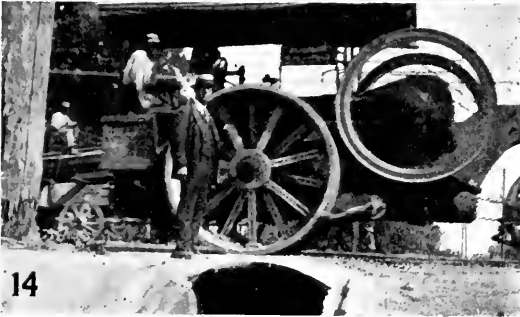
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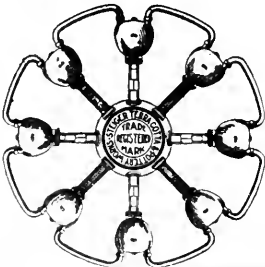
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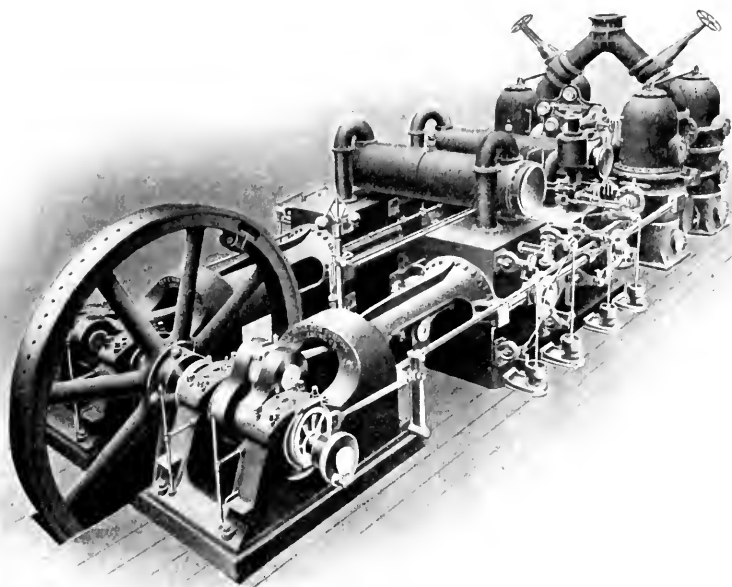
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Napa	1	" " " " " "	San Diego	2	" " " " " "
Ross	1	" " " " " "	San Diego	1	85-foot Aerial Hook and Ladder Truck
Piedmont	1	" " " " " "	Los Angeles	1	65-foot " " " " " "
Berkeley	1	" " " " " "	Los Angeles	1	City Service " " " " " "
Oakland	4	" " " " " "	Los Angeles	3	Chassis for Combination Wagon
Richm'nd	1	" " " " " "	Los Angeles	2	Comb. Chem. Engines and Hose Wagon
Palo Alto	1	" " " " " "	Nat'lal City	1	" " " " " "
Hanford	1	" " " " " "	Redlands	1	" " " " " "
Porterville	1	Hose Wagon	Long Beach	1	Tractor for City Service Truck
Pasadena	1	Chemical Engine			

Other Makes Exclusive of Pumping Engines

Chico	1	Comb. Chem. Eng. & Hose Wagon	White
Santa Rosa	1	" " " " " "	Pope-Hartford
Berkeley	1	" " " " " "	Gramm
Santa Barbara	1	" " " " " "	Pope-Hartford
San Bernardino	1	" " " " " "	Pope-Hartford
Venice	1	" " " " " "	Pope-Hartford
Coronado	1	" " " " " "	Knox
Hollywood	1	" " " " " "	Tourist
Monrovia	1	" " " " " "	Tourist
So. Pasadena	1	" " " " " "	Tourist
Pomona	1	" " " " " "	Rambler
Whittier	1	" " " " " "	Rambler
Long Beach	2	" " " " " "	Rambler
San Diego	1	" " " " " "	Rambler
Stockton	1	" " " " " "	Knox
Alhambra	1	" " " " " "	Tourist
Los Angeles	1	" " " " " "	Gramm
Porterville	1	Chemical Engine	Knox
San Francisco	1	" " " " " "	Pope-Hartford
San Francisco	1	" " " " " "	American-LaFrance

NOTE—This is a complete list according to our records. Any omissions are due to oversight and are not intentional.

We respectfully refer intending purchasers to any of the above-named cities for information, not only about Seagrave machines, but those of other makes as well.

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RECAPITULATION

American-LaFrance	1	White	1
Gramm	2	Knox	3
Tourist	4	Rambler	5
Pope-Hartford	5	SEAGRAVE	28

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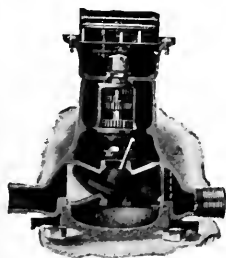
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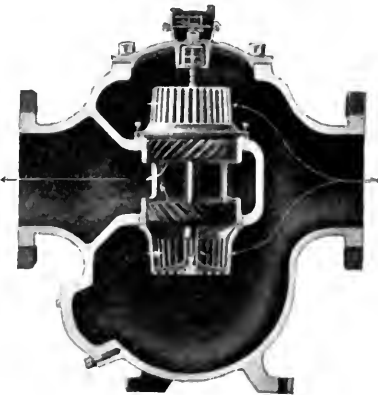
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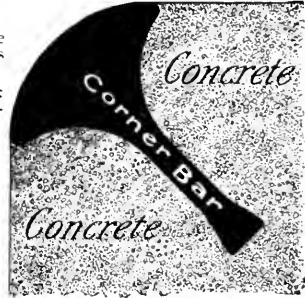
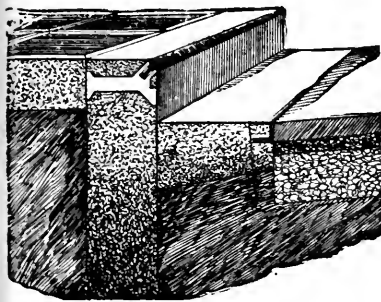
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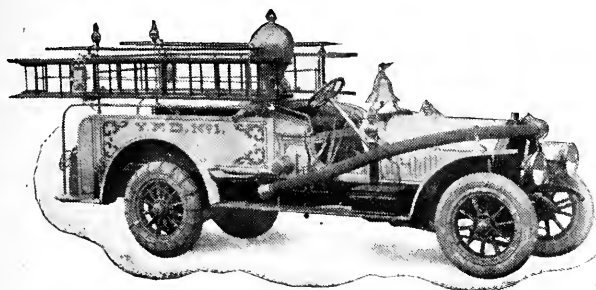
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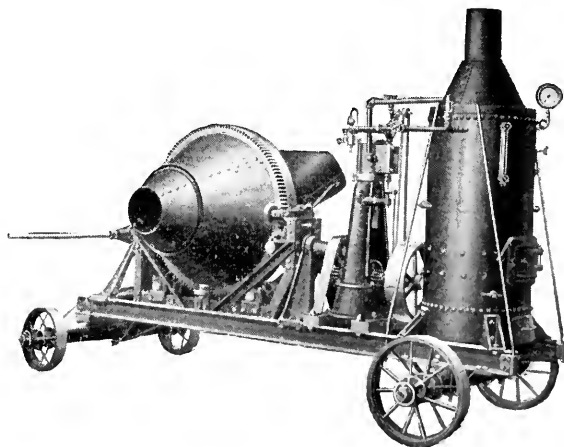
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LEAGUE OF CALIFORNIA MUNICIPALITIES

Organized 1897

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Eureka	Modesto	San Leandro	Winters
Exeter	Monrovia	San Luis Obispo	Woodland
Fairfield	Monterey	San Mateo	Yreka
Ferndale	Mountain View		
Fort Jones	Napa		
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Each city belonging to the League of California Municipalities is entitled to a free copy of this magazine every month for each of its officials; if not received kindly notify the Secretary. See that your City is in the above list.

NOTE—Every city official in California reads Pacific Municipalities.

Pacific Municipalities

OFFICIAL ORGAN OF THE LEAGUE OF CALIFORNIA MUNICIPALITIES

Entered at Post Office, Santa Clara, Cal., as Second-Class Matter

VOL. XXVI

FOURTEENTH YEAR

No. 7

EDITORS - - - H. A. MASON AND W.M. J. LOCKE

EDITORIAL AND BUSINESS OFFICE NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO

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Published Monthly. Yearly Subscription, \$2.00 in Advance. Single Copies, 25 Cents

OPEN LETTER NO. 2

We feel obliged to thank you for the few letters we have received this month assuring us of your cooperation by consulting our advertising pages in case of need, particularly those who called our attention to the lack of incinerator and lamp post advertisers. We tried our best to get such firms in line but could not convince them that it would pay.

We are very sorry to say that the principal excuse of firms who do not place advertisements with us is one which we have the hardest time to overcome, namely, accusations that graft is the only way municipal business can be secured. The most of these people hate legitimate means to come before the public, saying that the only advertising with city officials that pays is spending money with them, and we certainly have no words strong enough to repudiate such insinuations which we know in the main are manufactured out of whole cloth.

Firms (and we do not care what business they may be engaged in) who try these means for selling their goods must have inferior stuff. They do not deserve any patronage because they fear legitimate competition and are forced to spend their money in ways they would not have the public know.

It is proven beyond doubt that advertised goods as a general rule are far superior to those which are not advertised, even though the price is often higher. The cheapest article is by no means the most economical (in fact the reverse is generally the case), and we believe specifications should be framed in such a manner that it would not be compulsory to award contracts necessarily to the lowest bidder.

The time when a municipal office was an empty honor has passed. More efficiency is asked for every day, and we in the West, particularly in California, can show that in municipal government and public improvements we are far ahead of the East. The writer attended the recent meeting of the National Municipal League in Los Angeles and was proud to hear that the delegates of other States had to acknowledge that fact. Yes, we are ahead and we will keep ahead, and the means to accomplish that is by our publication. We want to make a larger publication of it and we ask for your support to that end.

If anybody calls on you and has anything to offer in the municipal line, call his attention to Pacific Municipalities; ask him to advertise therein. By so doing you will help the city you serve and all the other Municipalities besides.

Yours very truly,

J. F. SELIG
Business Manager

PACIFIC MUNICIPALITIES

A Journal for Progressive Cities

VOL. XXVI

JULY 31, 1912

No. 7

THE NEXT CONVENTION

The League of California Municipalities is a thriving institution. During the past three or four years it has been making great strides, growing constantly in numbers and in influence. The last annual meeting was much larger than the preceding one and that was correspondingly larger than the one before. And now there is every indication that the fifteenth annual convention will make all previous meetings pale into insignificance.

The location of the meeting place will have a whole to do with it, of course. A great number of people will want to take advantage of the cheap railroad fare to pay a visit to San Francisco besides attending the convention. With this knowledge in mind it is the intention of the officers of the League to exercise great care in preparing the program so that the time of the delegates will be used to the greatest advantage.

The Hearst Memorial Mining Building at the University is an admirable place for holding the convention. Most of the building will be given over to the Pure Food Exhibit which will be supervised by Professor M. E. Jaffa and conducted under the auspices of

the State Board of Health. Professor Hermes and Mr. H. F. Gray will also make an exhibit there of the latest methods for ridding towns of flies and mosquitos.

One advantage of meeting at the University is the excellent opportunity it affords of making tests and practical demonstrations, and this will be one of the features of the program, making tests of the principal materials used in municipal work, such as rock and cement.

Professor Charles Gilman Hyde, who delivered one of the most interesting and important papers at our meeting a year ago, will be right at home on this occasion and take an active part on the program. Likewise Professor C. L. Cory, the well-known expert on lighting systems, is expected to participate. Undoubtedly one of the most interesting papers will be an address by Professor Robert Sibley, entitled, "The West as World Beaters in Engineering". It will be profusely illustrated with stereoptican views showing the wonderful work that man has done in this part of the world. Professor Sibley is connected with the Department of Mechanical Engineering at the University, besides being

the Editor of the Journal of Electricity, Power and Gas.

Many important matters will be taken up in the Department of City Attorneys. It is likely that a few amendments will be offered to the "Improvement Act of 1911". It is suggested for one thing that the "Notice of Improvement" should set forth the date upon which protests will be heard, an idea taken from the "Local Improvement Act of 1901". It has been suggested also that we should adopt the "Bancroft Law" of Oregon in relation to the street improvement bonds, as it contains several superior provisions.

Referring again to the general body, there will be a very interesting paper by Beverly L. Hodghead, former president of the League, entitled "A Comparison of the methods and efficiency of modern European and American City Government". Mr. Hodghead, as many of our readers know, made a trip to Europe about a year ago, and he apparently took note of some matters which he thinks would be of interest to the city officials of California.

Mayor Stone of Santa Cruz will present a paper on the subject of "Progress in Municipal Government", being suggested to him by the fine paper delivered by Mayor Mott on this subject at the Santa Barbara meeting. Mayor Stone is an eloquent and earnest speaker and his address will undoubtedly be very interesting as well as instructive.

The old question of uniform accounting will probably be taken up by the clerks and auditors. It is proposed to submit a model plan and have the clerks in attendance take action on its various provisions. B. F. Hudspeth, City Clerk of Chico, and William Dolge, expert accountant for the

Board of Supervisors of San Francisco, will take the lead in this matter.

Another important subject along the same lines will be the discussion of a uniform system for the levy, assessment and collection of taxes for small municipalities, which will be taken up in the department of city attorneys. Jas. A. Ballantine, City Attorney of Piedmont, and C. L. Priesker, City Attorney of Santa Maria, have recently framed ordinances on this subject and will participate in the discussion of this question.

"More Efficiency in the Health Department of Small Cities" will form a subject for discussion before the general body, led by Dr. Fred Wm. Browning, chairman of the committee on standard methods of public health administration, of the California State Board of Health. It is a difficult thing to make the officials of small municipalities realize the economic value of a well organized department of health. The health problem is more a matter of prevention than cure.

Another interesting number will be a talk by Wm. B. Gester, the well known specialist on Portland cement. In connection with Mr. Gester's talk there will be a practical demonstration of cement testing. It is a fact not very well known that the University has the finest outfit of testing machinery and apparatus on the coast. Mr. Gester will devote his talk principally to the use of cement in road and street construction. It might not be out of place to mention here that many of the leading authorities on this subject are advocating more attention to the subject of road building by the engineering department of the University. The members of the State Highway Commission will be invited to attend

the convention and every prominent city engineer in the state is expected to be on hand.

The "Disposal of Garbage in Small Cities" is another question which will probably come in for some discussion. The fly evil is sure to be with us until some better way is found for disposing of garbage.

A question which will probably be given a prominent place on the program is that of rate fixing. Many cities are anxious to know if it is advisable to surrender their powers to the Railroad Commission. Members of the commission are expected to be in attendance and discuss the matter.

The "Initiative, Referendum and Recall" will be sure to come in for a lot of attention at this session. The provisions for direct legislation should not be so lax as to enable small organized minorities to repeatedly harass an administration and impede municipal progress. To permit the use of the initiative or referendum in matters requiring technical knowledge is

a very questionable policy. Not long ago the referendum was used in Los Angeles on the Tuberculine Test Ordinance, the provisions of which were as incomprehensible to the general public as an ordinance establishing grades. Dr. L. M. Powers, the Health Commissioner of Los Angeles will address the convention on this question.

President Dodson has suggested another department or division of the convention to take up building construction, fire waste and fire fighting. The idea will be submitted to the Executive Committee of the League at a meeting to be held in San Francisco on August 3d.

Another important number will be an address on the subject "Improvements in Public Health Administration in California" by Harold Farnsworth Gray, the specialist in fighting the fly and mosquito. Mr. Gray is going to considerable trouble and expense to collect the data for his address, and will undoubtedly have something of importance to say.



A MUNICIPAL AND PURE FOOD EXPOSITION

The Exposition which will be held in connection with our Convention and for which we are anxious to arouse the interest of the general public will surpass anything of the kind ever seen before in this state, and it will unquestionably justify all the time the delegates can afford to give to it. Up to the present time the following firms have arranged for space:

The Barber Asphalt Paving Company will make an exhibit of the various kinds of pavements they are con-

structing; also a display of their famous Iroquois Road Rollers, Genasco Roofing, etc., and those who are interested in good roads will want to see this exhibit, likewise that of the Warren Brothers Co. of Boston, who will show samples of the Bitulithic, Warrenite and other pavements of which they make a specialty. There will also be exhibits of this character by the City Street Improvement Company, Ransome-Crummey Paving Company, the Standard Oil Company and

the Union Oil Company. All these well known concerns will have competent men on the grounds to furnish information on street and road construction. Adjoining the booths of the paving men will be that of the Braun Knecht Heimann Co., who carry the best scientific apparatus for testing oil and asphalt. They will make practical demonstrations during the Exposition. Similar exhibits will be made by the well known firm of Bausch & Lomb Optical Co., who will show in addition a fine line of instruments for city engineers and health officers. The firms of A. Lietz & Co., Frederick Post and Kenffel & Esser Co. will also make exhibits of instruments. Parrott & Co. will exhibit a Smith Hot Mixer of which they have made such a success since its introduction in this state. Langford, Bacon & Myers will show the latest improved type of the Foote Batch Concrete Mixers with Traction Attachment, which type of Mixer is particularly adapted for the economical laying of concrete bases for streets and roads, being the Mixer used by all of the largest paving contractors on this Coast for that class of work. On the streets of the City of Oakland alone there are five of these Outfits at work almost continually.

They will also exhibit one of the Russell Traction Special Road Machines, and an Erie Tandem Asphalt Roller.

A full line of road and contractors' machinery will also be shown by the well known firms of the A. L. Young Machinery Co. and the Studebaker Co., while the Gorham Fire Engine Co. will make an elaborate display of fire apparatus and other things needed for fire departments. The Nep-

tune Meter Co. will make a display of their well known Trident Water Meters, while the Byron Jackson Iron Works will have an exhibit of their famous pumps in actual operation. A Fire Alarm System in actual working order will be shown by the Gamewell Fire Alarm Co., while the Police Flash Light System will be exhibited by the Dean Electric Co. A Storage Battery Equipment for Fire Alarms, Telephone and Electric Lighting purposes will be on exhibition in the booth of Pierson, Roeding & Co., who will also have a display of Aluminum Transmission Equipment, the Orangeburg Fibre Conduit with the various fittings; also a descriptive set of samples of Locke Insulators.

The delegates will undoubtedly be very much interested in the electrical exhibit of the Pacific States Electric Co., who promise a very interesting display. Another which will undoubtedly attract a great deal of attention will be that of the Orenstein-Arthur Koppel Co., who will show their transportable trucks and dump wagons. The new Fess System of oil burners will also be exhibited by the inventors.

In the building line there will be exhibits by the John A. Roebling Construction Co., Dahlstrom Metallic Door Co., Pacific Clay Products Publicity Bureau, Gladding McBean & Co., N. Clark & Sons and the Steiger Terra Cotta & Pottery Works. The three last named firms will have samples of their sewer pipe with which the Pacific Sewer Pipe Company of Los Angeles will make a special feature exhibit.

The California Corrugated Culvert Co. will be on hand as usual with a fine display to try and convince the delegates of the superior advantages

of Ingot Iron Culverts, while the Standard Corrugated Pipe Co. will make an exhibit of Standard Flumes, something new and very interesting for city engineers. A. Carlisle & Co., the stationery house which probably furnishes the stationery and printing of a political character, for nine-tenths of the small towns of the State, will have a full line of their samples on hand; also a model of the Dalton Adding Machine, alleged to be the latest and best on the market. Another interesting exhibit is expected by the General Electric Co. on Street Lighting Systems. There will probably be an exhibit by the West Disinfectant Co., whose display at Santa Barbara attracted so much attention. The Johns Manville Co. hope to be able to make an exhibit. Many other firms have taken the matter up and will undoubtedly arrange to participate on receipt of authority from their home offices in the east. Among the interesting things which will be shown will be a working model of the Briggs Motor-driven Sanitary Street Cleaner which sprinkles, sweeps and gathers the dirt in one operation without making any dust. Mr. D. K. Adams, Superintendent of Streets of San Diego says of this machine:

"I consider that we will be able to do away with seven or eight men and five teams by using your Machine. Another point that I appreciate very much is the lack of dust. This is prevented by the excellent system, and I heartily recommend your machine for cleaning paved streets."

In order to interest the public and secure a large attendance at our convention this year it was decided to introduce a new feature in the way of pure food and sanitary exhibits. This was suggested by the little exhibit of this character made by Dr. Snow last year at the Santa Barbara meeting. Prof. M. E. Jaffa, M. S., Director of

the State Food and Drug Laboratory has consented to supervise this Pure Food Show in addition to making an exhibit from his own laboratory at the University. This feature will certainly be very valuable as the city officials will be able to see samples of the various kinds of food commonly subjected to adulteration. Nearly all the chartered cities are given power over this question of pure foods, and a great deal of good will undoubtedly be accomplished by this exhibit for the ultimate welfare of the State and its inhabitants.

This Pure Food Show will be a very different affair from the so-called Pure Food Expositions where everybody who pays is allowed to display anything and everything. Nothing will be allowed here unless it complies with the requirements of the Pure Food and Drugs Act. Among the list of manufacturers and producers of food products who have spoken for space and agreed to exhibit are the following:

California Central Creameries, who will make a special display of their dry milk; California Fruit Cannery Association; California Salt Company; Golden Gate Yeast Company; F. M. Mason, who will make a display of Semolina Paste; C. E. Whitney, the producer of Leslie salt; L. Baron & Sons, Jersey Cream; Kelley-Clark Company, Crisco; Parrott & Company, Asparagus; Sunlit Fruit Company; A. Schilling & Company, Coffee, Tea and Spices; John H. Spohn Company, who will make an elaborate exhibit of the many fancy groceries they handle; Hawaiian Pine Apple Company, Dole's Pine Apple Juice; Hygienic Health Food Company; Globe Mills; Sperry Flour Company; Albers Bros. Milling Company; Standard Soap Company and the Phoenix Milling Company. Among the well known articles which will be exhibited by the

John H. Spohn Company are the following:

Instantaneous Tapioca

Eddy's Salad Mustard

MacLaren's Imperial Cheese

Welch's Grape Juice

Snider's Catsup, Chili Sauce, Oyster

Cocktail Sauce, Snider's Pork & Beans

Old Mission Olive Oil and Old Mission Ripe Olives

Hires Root Beer

Brand's A-1 Table Sauce

Hoff's Malt Extract

National Oats

Carnation Milk

Runkel's Cocoa and Chocolate

Aunt Jemima Pancake Flour



A REVIEW OF THE CITY CHARTERS ADOPTED IN CALIFORNIA DURING THE PAST TWO YEARS, WITH COMMENTS

BY WM. J. LOCKE

A number of cities in the state are now preparing to frame charters or charter amendments, in order that the same may be submitted for approval to the next session of the legislature. With the idea that it might be of some value to the various boards of freeholders having this work in hand to obtain a synopsis of the charters recently adopted in California, this article is written.

It is frequently the case that men elected to frame a city charter have few qualifications, if any, for undertaking a work of this kind, and although above the average in general intelligence they are often deficient in their knowledge of municipal government; many men, through lack of time or for other reasons, giving but little attention to governmental affairs.

For this reason it is desirable to secure if possible the election of freeholders who, by experience and training have some conception of their duties and responsibilities. Nor is this entirely sufficient to insure the framing of a first class instrument. Freeholders who desire to achieve the best results possible to be obtained should make a practice of engaging the services of experts, and securing the aid of men who have given special attention and study to this problem of municipal government.

That municipal government is a problem everybody will concede. Fifteen years ago the government of the cities and towns of the United States was the crying evil of the country, and the situation was cited as evidence of the failure of democratic government. Great changes have taken place since that time and vast improvement has been made in the government of our municipalities. Of the states achieving the most progress, California has taken an acknowledged lead, due largely to the splendid work of our organization, the League of California Municipalities, through whose constant activities the cities and towns have been enabled to keep in touch with the most advanced thought on the subject. The following pages contain a synopsis of the most important provisions of the municipal charters recently adopted in California, together with a comment on their principal distinctive features.

NAME OF CITY	Charter in Effect	Petitions for Nomination	Conduct of Elections	Term of Office		Salaries		Percentage for Initiative		Percentage for Referendum	Percentage for Recall	Expenditures Requiring Work by Contract	Limit of Franchises	Fiscal Year Begins
Petaluma	Apr. 17, 1911	state law	state law	4 yrs.		\$150		15	25	25	30	\$200	40 yrs.	July 1
Pomona	May 8, 1911	20 per ct.	similar to Berkeley	2 yrs.	4 yrs.	\$1,200	\$300	5	15	20	20	\$250	state law	July 1
San Luis Obispo	May 15, 1911	25 to 100	state law	2 yrs.	4 yrs.	\$1,500	\$500	10	25	10	25	\$300	35 yrs.	July 1
Santa Cruz	July 1, 1911	25 up	Berkeley system	2 yrs.	4 yrs.	\$1,200	\$900	10	20	spcl limitations	15	\$500	35 yrs.	July 1
Vallejo	July 1, 1911	25 to 50	Berkeley system	4 yrs.	4 yrs.	\$2,100	\$1,500	5	15	10	15	\$500	35 yrs.	July 1
Oakland	July 1, 1911	50 to 250	similar to Berkeley	4 yrs.	4 yrs.	\$4,200	\$3,600	5	15	10	15	\$500	35 yrs.	July 1
Monterey	July 1, 1911	25 to 100	state law	2 yrs.	4 yrs.	\$250	\$200	10	15	25	25	\$500	50 yrs.	July 1
Modesto	July 1, 1911	25 up	Berkeley system	4 yrs.	4 yrs.	none	none	15	25	15	15	\$200	25 yrs.	July 1
Sacramento	July 1, 1912	100 to 300	Berkeley system		5 yrs.		\$3,600	5	15	10	10	\$500	25 yrs.	Jan. 1
Stockton	Jan. 6, 1913	25 to 35	Berkeley system	4 yrs.	4 yrs.	\$3,000	\$2,400	10	20	10	20	\$600	25 yrs.	Jan. 1

A DIVISION OF THE DEPARTMENTS, EACH HEADED BY A COMMISSIONER

POMONA	SAN LUIS OBISPO	SANTA CRUZ	VALLEJO	OAKLAND	MONTEREY	MODESTO	SACRAMENTO	STOCKTON
Pop. 10207	Pop. 5157	Pop. 11146	Pop. 11310	Pop. 150174	Pop. 4923	Pop. 4034	Pop. 44696	Pop. 23253
public works and revenue	finance and revenue	public affairs and finance	public finance and supplies	public affairs and finance	finance and revenue	finance and revenue	public works and streets	finance and revenue
public works and revenue	public health and safety	public health and safety	public health and safety	public health and safety	public health and safety	public health and safety	public health and safety	public health and safety
fire and health	public works	public works	public works	public health and safety	public works	public supplies	public safety	public health and safety
police	public supplies	public supplies	public works	public works	public supplies	public supplies	education	public works
public supplies	public supplies	streets & parks	streets	streets			finance	audit

ELECTIVE OFFICERS

Petaluma	Pomona	San Luis Obispo	Santa Cruz	Vallejo	Oakland	Monterey	Modesto	Sacramento	Stockton
Mayor Clerk Auditor Assessor Treasurer Tax and license collector Chief of Police	Mayor 4 Councilmen Auditor and ex-officio clerk Attorney Assessor and ex-officio tax and license collector and treasurer. Police Judge 5 Board of Educ.	Mayor Clerk 4 Councilmen 1 School directors	Mayor 4 Councilmen 3 auditing com. 5 board of educ.	Mayor Auditor and ex-officio Assessor 2 Commissioners 3 school directors	Mayor Auditor and ex-officio assessor 4 commissioners 6 school directors	Mayor 4 councilmen 5 board of education	Mayor 4 councilmen 5 board of education	5 commissioners Mayor	Mayor 4 councilmen 5 school directors

APPOINTEE OFFICERS

3 Park Com'ts 5 board of health 5 Fire Com'ts Engineer Attorney Fire Chief	Chief of Police Engineer Street Sup't 5 lib'ry trustees Health Officer Fire Chief Park Supt. Bldg. Inspector	Treasurer Attorney Tax Collector Engineer Chief of Police Street Sup't 5 lib'ry trustees Fire Chief	Attorney Police Judge Plumbing and building inspector supt. water w'ks Treasurer and ex-officio tax & license collector 5 lib'ry trustees Clerk and ex-officio Assessor Engineer and Surveyor Chief of Police Fire Chief and assistant Health Officer Supt. of Schools Street Supt. Supt. of Electricity Dept.	Clerk tax collector Attorney Engineer Chief of Police Street Supt. Health Officer 3 lib'ry trustees	Attorney Police Judge Plumbing and building inspector supt. water w'ks Treasurer and ex-officio tax & license collector 5 lib'ry trustees Clerk and ex-officio Assessor Engineer and Surveyor Chief of Police Fire Chief and assistant Health Officer Supt. of Schools Street Supt. Supt. of Electricity Dept.	Clerk tax collector Attorney Engineer Chief of Police Street Supt. Health Officer 3 lib'ry trustees	Clerk tax collector Attorney Engineer Chief of Police Street Supt. Health Officer 3 lib'ry trustees	Clerk tax collector Attorney Engineer Chief of Police Street Supt. Health Officer 3 lib'ry trustees	Clerk tax collector Attorney Engineer Chief of Police Street Supt. Health Officer 3 lib'ry trustees
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The **Petaluma** charter does not differ materially from the charter provided in the general laws of the state for governing cities of the fifth class. It raises the limit of expenditure, beyond which it is necessary to advertise for bids and let contracts, from \$100 to \$200. There is a provision for the eradication of weeds and rubbish from vacant lots and sidewalks, enabling the council, after due notice, to have them removed and the expense made a lien on the property. All the new charters have a provision on this subject but in some cases they relate to sidewalks only and do not cover vacant lots.

The new charter of **Pomona** divides the city into four wards. This plan is contrary to the best thought on the subject and all the leading authorities are unanimous in the opinion that the ward system should be abolished. In Pomona, if a councilman moves out of his ward he is not allowed to remain on the council. Elections are conducted under the general election laws of the state except that no party designation is permitted on the ballot.

San Luis Obispo has a typical commission charter without any important distinctive features. The limit of expenditure without requiring advertisement for bids is raised to \$300. Nominations for office are made by petition and a plurality vote elects.

Santa Cruz has several new features. Among the elective offices is an auditing committee of three members. The council is authorized to expend up to \$500 without advertising for bids. The referendum may be invoked only as to ordinances authorizing contracts involving an expenditure of \$1000 or more, and on all franchises, while all ordinances relating to licenses for intoxicating liquors must be submitted to the people. The Santa Cruz charter puts further restrictions on the use of the recall. A statement of **intention to circulate a recall petition** must first be filed with clerk with a 200 word argument. The official sought to be recalled is served with a copy and permitted to submit a 200 word argument justifying his course. Both arguments are then printed on the petition and also on the sample ballot.

The new charter of **Vallejo** is distinctive by reason of having but three commissioners who, like in all the other cases, constitute the council or legislative body. It has the Berkeley system of election and the Santa Cruz provisions regarding the recall. A **cash basis fund** is provided and a tax of 2 1/2 cents on the hundred allowed therefor. To exercise the **initiative** a statement of intention must first be filed, like in the recall provisions of the Santa Cruz charter and arguments of 200 words each, by the council and by the proponents, are then printed on the petition to be circulated.

The **Oakland** charter has a most peculiar scheme for nominating candidates for commissioners. They must announce themselves as running for Commissioner No. 1, 2, 3, or 4, and the two receiving the highest votes at the primary for each of these numbers become the nominees. The numbers have no other significance, as after election each is assigned to a particular department by a majority vote. Whatever the advantages may be of this scheme, it apparently would eliminate good men from the opportunity of nomination if two or more should unfortunately announce their candidacy for a commissionership of the same number. A **cash basis fund** is provided.

The **Monterey** charter has no distinctive features. The mayor and four councilmen are the only elective officers.

The charter of **Modesto** has a significant provision in regard to recall elections, requiring that if the recall is successful another election must be held immediately afterwards to choose a successor to the official recalled.

The new charter of **Sacramento** is purely commission. There is no mayor, one of the commissioners being chosen to preside and perform the other ministerial duties usually falling on that official. The commissioners are the only elective officers and must devote at least six hours each day to the city's business. The **street superintendent** has to be a civil engineer of at least five years' practice. A **cash basis fund** of two and one half cents on the hundred is provided.

The **recall** provisions are the same as laid down in the Santa Cruz charter except that it only requires a ten per cent petition instead of fifteen per cent. In case the recall prevails the commissioners appoint a successor to the officer recalled, which appointment holds till the next regular election. The five commissioners also comprise the Board of Education.

An **official newspaper** is provided for, also a **bureau of efficiency and economy**.

The **Stockton** charter requires a twenty per cent petition for a recall election and provides that a 200 word argument on both sides shall be published in the call of election. The limit of expenditure without advertising for bids is \$600, but five days must intervene from the time the proposition is introduced. The limitation does not apply at all in case of great public calamity if expenditure is authorized by unanimous consent of the council.

Contract Work

The provisions of all charters (general laws included) which require advertising for bids and the letting of contracts on work and supplies costing over a certain sum, should be amended so as to have a saving clause exempting it from application in cases of great public danger or calamity. The charters of Los Angeles and Stockton have such a clause.

A few months ago the waterworks of the town of Bishop were found to be in need of immediate repair. To advertise and wait for bids would involve dangerous delay and the officials were compelled to disregard the law.

Weeds and Rubbish

All the late charters authorize the council to have weeds removed from the sidewalks upon neglect or refusal of abutting owners, after due notice, and to make the expense a lien on the property of such owners. Several charters go farther and give the council the same authority over vacant lots. Pasadena has had such a provision since 1902, the ordinance covering the matter declaring that "all weeds whose seeds are of a wingy or downy nature and which could be spread by the wind" are a public nuisance.

The Recall

It is conceded by nearly everybody that the procedure for making use of the recall will have to be amended and restrictions added which will prevent disgruntled politicians or factions from using it as a club on the administration

in power. Several of the charters recently adopted require arguments "pro" and "con" to be published on the petitions before they are circulated. This will not accomplish much in the nature of an improvement as the average signer seldom stops to read the arguments in any case. Unfortunately we are confronted with the fact that petitions of all kinds are usually signed to accommodate a friend or else to get rid of a bore, and for these reasons the practice of sending out petitions with solicitors is all wrong.

Would it not be better to have the petitions put in one or two public places in a city and require petitioners to go there and sign? Such a plan would afford ample means to the earnest and sincere citizen to use the recall, while it would eliminate those who sign anything and everything just to be obliging. The citizen who honestly believes an officer should be recalled will offer no objection to going to the place where a petition may be found, whereas the fellow who signs for accommodation only, not being interested in the merits of the case, will not put himself out. Another good provision would be to require publication of the arguments in a newspaper before the petition is submitted for signatures in order to enable the public to become fully acquainted with the arguments before they are asked to sign. Finally, why not allow friends of the official threatened with recall the right to submit a counter petition for his retention, and provide that there shall be no election unless the petitioners for recall exceed the others in number? For while ten or fifteen per cent of the voters may favor a recall there may be twice the number who would sign petitions to have the officer retained. Why then put a city to the expense and aggravation of a recall election because fifteen or twenty per cent of the voters are dissatisfied? There is always a dissatisfied minority, and it is a well known fact that the more active the administration the more enemies it makes.

Berkeley had a recall election recently over the removal of a school principal, but it failed to carry. A great many citizens who did not like the official attacked, believed that it was not a proper case for the recall and voted accordingly. At this writing Oakland is in the throes of a recall election. Some of the police force got in a mix-up with the I. W. W. and the Socialists over free speech. One thing led to another until finally petitions were put in circulation to recall the mayor and some of the commissioners. Thus, fifteen per cent of the voters were able to plunge the city into the turmoil and expense of an election; it will cost the city something over \$20,000. Oakland has made great strides during the incumbency of Mayor Mott and many of its citizens would look upon his recall as little short of a calamity.

Preferential Voting

In April 1910, we published an article in Pacific Municipalities describing the system of preferential voting, which forms one of the principal features of the charter of Grand Junction, Colorado. Since then, Spokane, Washington, has adopted a charter embodying the same system. The advocates of the method claim that it is the best plan yet devised for securing a true expression of the people's choice in one election. Candidates are placed on the

ballot by petition and the elector is compelled to vote for his first and second choice for each office; he may also vote for as many other choices as he desires.

Those candidates are elected who receive first choice votes equal in number to a majority of all votes cast. In case a majority has not been received in the first choice column, the first and second choice votes are added together and those candidates receiving the greatest number of total votes in excess of a majority are elected. The other choice column is resorted to if the votes secured on this count are not sufficient.

An analysis of this method will show that it possesses many advantages, the principal one being that it requires a majority vote to elect and necessitates but one election. The following will give an idea of the ballot used in the last election at Spokane and shows the actual vote cast, together with an opinion on the merits of the system from Hon. David C. Coates, Commissioner of the Dept. of Public Works of the City of Spokane.

GENERAL MUNICIPAL ELECTION

City of Spokane, March 7th, 1911.

INSTRUCTIONS

To vote for any person, mark a cross [X] in a square [] to the right of the name.

VOTE FIRST CHOICE FOR FIVE candidates, or ballot will be void. Second and Third choice is **NOT COMPULSORY**.

Vote only **FIVE FIRST CHOICES**, and only **FIVE SECOND CHOICES**.

Vote as many Third choices as you wish.

Vote your **FIRST CHOICES** in the first column.

Vote your **SECOND CHOICES** in the second column.

Vote in the **THIRD COLUMN** for all the **OTHER CANDIDATES** whom you **WISH TO SUPPORT**.

DO NOT VOTE MORE THAN ONE CHOICE FOR ANY ONE CANDIDATE, as only the one choice will count.

All distinguishing marks make the ballot void.

If you wrongly mark, tear, or deface this ballot, return it and obtain another from the election officers.

FIVE COMMISSIONERS TO BE ELECTED.

CITY COMMISSIONERS	First Choice	Second Choice	Additional Choices
S. A. ANDERSON	4661	1734	617
DAVID C. COATES	6272	861	392
W. J. DOUST	2752	2544	1169
N. W. DURHAM	4604	1552	494
ROBERT FAIRLEY	12,779	1692	547
C. M. FASSETT	6284	1815	459
LEONARD FUNK	4007	1523	564
F. M. GOODWIN	3243	1753	722
ZORA E. HAYDEN	4260	2400	734
WILLIAM J. HINDLEY	7513	1755	628
J. GRIER LONG	3891	2802	703
M. J. LUBY	4304	2170	825

Note—The names were half an inch apart, separated by lines, and there were three voting squares to the right of each name.

The total vote cast was 22,058.

Spokane, Wash., July 17, 1912.

Mr. W. J. Locke, Managing Editor,
Pacific Municipalities
San Francisco, Cal.

Dear Sir:

Your letter of July 12th, to our Mayor Hindley, asking information as to the operation of the preferential system of voting in our city charter, has been referred to me for reply. I was the City representative at the International Municipal Congress at Chicago last year and from whom you got your information relative to our system.

Our preferential system is somewhat different from that of Grand Junction, Colorado, for the reason that we group our commissioners in preference to electing them by department, as they do in Grand Junction.

I am sending you in this mail two copies of our city charter in which the system is described in simple form. I am also sending you a sample ballot used at our last general municipal election on which are the votes cast for the twelve highest candidates.

You will notice by the ballot that we had ninety-four candidates running for the five positions, and yet the election was remarkably successful in expressing the choice of the voters. The opposition to the system made as their greatest claim against it that the three choices would so muddle the electors that it would make it impossible to cast an intelligent vote.

Our municipal election was held within ninety days of the adoption of the charter, and yet the preferential system proved so successful that it not only demonstrated an intelligent expression of the voters, but there were less spoiled ballots than there had been each election for the past ten or fifteen years under the old Austrailian system.

On first reading, the system seems somewhat complicated, but an illustration of its method on blackboard proves how simple it is and our people, by such illustrations, readily grasped its operations. This system allows full freedom to any and every one who desires to run for office by filing a petition of twenty-five citizens, for no convention or primary combination can eliminate any candidate and narrow the contest to two men, both of whom may be undesirable and selected by the interests, including every municipal business or license, as was done under the old system. It does away with all the turmoil and expense of two elections and breaks up political combinations of public service corporations, vice elements and others interested in municipal business from a selfish standpoint from controlling the election; for when the elector has the opportunity of voting for every candidate on the ballot, he will get away from any and all of the old influences which control nearly every municipal election in the United States.

Under the old system, these elements control by being able to combine from 10 to 15 per cent of the voters, but our system provides for a majority vote to elect on the first and second ballots. No matter what combinations are formed and pressure brought on certain elements to vote for the favored

candidates, the influenced or purchasable voter exercises his one desire, after he has obeyed orders to vote for certain candidates. This was the result in our election and you will notice by the ballot sent you that the second and third choice were quite well exercised.

I have been a student for a number of years of election systems, but the method as outlined in the Spokane charter is the best, in my opinion, that has been yet devised for practical purposes in really freeing the voters from any influence or domination at the polls.

You will notice in reading the charter provisions that we prohibit paid workers at the polls and also transporting voters, as well as limiting the amount of expenditures of candidates.

I was a member of the Spokane Charter Commission and largely devised our system after reading of the Grand Junction scheme and correspondence with the author of that system, Senator Bucklin, with whom I worked in Colorado for a number of years along the line of election reform.

If there is any other information that I can possibly give you in the interest of better municipal elections and government, I am at your service.

Very respectfully,

D. C. Coates
Com.



THE REGULATION OF PUBLIC UTILITIES

By John M. Eshleman, President of the Railroad Commission of California before the National Municipal League meeting at Los Angeles, July 8-15, 1912

It is my purpose to endeavor to outline the problems incident to the regulation of public utilities, partly by the state and partly by the municipalities, under the system which is now in vogue in this state.

At the time of the presentation to the legislature of the amendment to the Constitution enlarging the powers of the Railroad Commission over utilities other than railroads, there was a considerable difference of opinion as to whether the Commission should be given entire jurisdiction over all utilities or the city should be authorized to control utilities within its borders. The result was the present constitutional provision (Art. XXIII, Section 12, Constitution of California) which provides for the regulation of

utilities outside of municipalities by the Railroad Commission and the regulation of utilities within municipalities by the municipal authorities to the extent of the powers vested in such municipal authorities at the time of the going into effect of legislation, which the constitutional amendment contemplated to be passed, conferring powers upon the Railroad Commission for which the constitutional mandate provided. Thereafter the option remained with the municipality to exercise such authority over the utilities within its borders or, by an election held for that purpose, to transfer such powers to the Railroad Commission, and having once transferred its powers, the right was reserved to retake the powers at a subsequent

election, should the municipality desire.

This scheme of regulation makes it necessary for the public authorities, both state and municipal, to determine just what power is reposed in each several municipality at the time of the taking effect of the Public Utilities Act of this state, which was the legislation passed pursuant to the constitutional amendment heretofore referred to. In order that there might be no unnecessary conflict between state and municipal authorities, the Commission requested various city attorneys of the state to present their views as to what authority was vested in each municipality on the twenty-third day of March, 1912, the effective date of the Public Utilities Act, and directed its attorney to investigate the various city charters with a view to rendering an opinion on this question for the future guidance of the Commission. The Commission's design was merely to ascertain the extent of its power and at no time has it been desirous of usurping in any wise any authority reposing in the municipalities. Several city attorneys and various representatives of public utility corporations presented their views to the Commission and after careful consideration the attorney for the Commission rendered his opinion which was thereafter adopted by the Commission, and which represents the view which the Commission holds as to the authority which now reposes in cities and the authority vested in the Commission. It is our view that March 23rd, 1912 is the date which must be looked to in determining what powers were vested in the municipal authorities of the several cities. The powers which municipal authorities

have are the powers conferred upon them by the state, a municipality being a creature of the state for local governmental purposes. All such municipalities have the ordinary police powers which is the "power to conserve the health, comfort, happiness and conveniences of its inhabitants." (Tiedemon Municipal Corporations, Sec. 135.) As to such power over public utility corporations, the Railroad Commission, of course, has no authority. The power to fix rates of public utilities, however is a power which must be conferred upon municipalities by direct action of the state (Wyman on Public Service Corporations, Vol. I, Sec. 1410.) I have not overlooked the apparent enlargement of the police power of cities so as to include rate fixing powers by the decisions of some of the courts. I have particularly in mind the case of **Daninger vs. Recorder's Court of Pomona**, 145 Cal. 629, but the language used there, and which is usually referred to in support of the theory that the cities, under their police power, have the power of rate fixing, is certainly but dictum and not necessary to the decision of the case and, as pointed out by Mr. Thelan in his opinion to the Railroad Commission, if Section 11 of Article XI of the California Constitution be construed to confer upon the municipalities in its grant of police powers, then Section 19 of Article XI would be mere surplusage as would also be Section I of Article XIV, as these sections confer the same powers as would be conferred in Section 11 of Article XI and would be wholly unnecessary. The police power of the municipalities over public utilities is mainly the power to regulate the use of streets, and all cit-

ies whether under provisions of the Constitution (Section II of Article XI, Section 19 of Article XI, Section I of Article XIV) or under the general laws providing for the organization of certain classes of cities or under freeholders' charters as they existed on the twenty-third day of March, 1912, have power to regulate the rates for light, water, power, heat, transportation and telephone service or other means of communication in so far as such services are rendered within the limits of municipalities exercising such authority. As to railroad corporations, certainly these cities have no authority, except the ordinary police power which has already been adverted to. As to common carriers other than railroads and street railroad corporations, the municipalities have no power, except the police power. As to service and equipment, no municipalities other than those which were operating under freeholders' charters on the twenty-third day of March, 1912, have any authority whatsoever. To determine the powers of chartered cities in this regard, it will be necessary to resort to the various charters and the design of this paper does not require that such be done. It is sufficient to say, however, that most of the freeholders' charters of the cities of the State of California provide for varying degrees of regulation of the service and equipment of the Public Utilities within their borders.

Up to this point, I have presented but a bare outline of the reasoning by which the Railroad Commission has determined the powers of these municipalities under the law of the State of California as it is now stands. There has been no attempt to enumerate all of the powers of the Railroad Commis-

sion because of the fact that it is merely necessary to determine all powers of regulation which are conferred in the Public Utilities Act and deduct therefrom the power which may now be exercised by the municipalities and the difference will be the powers which the Railroad Commission may exercise. I assume that most of you, being students of utility problems, at least from the standpoint of municipal regulation thereof, are familiar with the public Utilities Act which was passed at the last Special Session of the Legislature of this State. If you have consulted that statute, you will have found that it is not merely a compilation of the laws of the various states, but is rather an homogeneous enactment designed to cover every aspect of regulation that may be presented to a public authority. To be sure the experiences of other states have been used to the best advantage and particularly is our statute designed to escape the difficulties which have confronted other commissions. The act represents the combined efforts of a great many of the leading attorneys of the state, representing both the municipalities and the public utilities. The original draft of the Act was drawn by the attorney for the Commission, Mr. Thelan, assisted by the writer, and thereafter copies were distributed to the various interested parties, including the representatives of the utilities within the state, and their views were invited. Many public hearings were held covering a considerable length of time and all of the suggestions which were considered meritorious by the authors were incorporated in some form in the bill and the Act as finally passed represents, we believe, the farthest advance in utility

regulation yet reached in any state.

I assume that it will be agreed that the three principal divisions of public utility regulation are—rates, service and securities. Falling within one or the other of these divisions are, I believe, all the subjects of regulation. The Commission has been given the authority to regulate the rates, service and securities of street railroad corporations, railroad corporations, express corporations, pipe line corporations, gas corporations, electrical corporations, telephone and telegraph corporations, water corporations, vessels, warehouse men and wharfingers, and each of these is defined as a public utility. As incident to the fixing of rates, the Commission is empowered to ascertain the valuation of the property of any public utility, and likewise to prescribe systems of accounts and regulate free or reduced rate transportation and prevent discriminations. As incident to service, the Commission has all the powers that are ordinarily necessary to require adequate fulfillment of their duties to the public by utilities and specifically may require extensions, proper management, proper equipment, adequate number of trains or cars, track connections, construction of spur tracks, maintenance of a proper standard of quality for certain commodities, etc. Likewise the Commission may prevent discrimination in service.

Street railroads, gas, electrical, telephone and water corporations are required to apply to the Commission for a certificate of public convenience and necessity and also for the right to exercise franchises. These provisions have to do with both rates and service.

The power of the Commission to regulate the issuance of securities of utili-

ties is a power which has not heretofore been conferred upon any public authority in this state. The Commission is not limited in dealing with securities to a refusal or a granting of permission to the utility to issue such security. It may deny the application as made; it may grant it as made or it may grant it in a modified form by imposing conditions which seem right and necessary. This latter power is not conferred specifically upon the Commissions in the various states, and lacking such specific grant, the courts usually take the view that the Commission's authority is limited to the granting or the refusal to grant the application as made. This defect in the New York statute has very seriously interfered with the work of the Public Service Commissions of that state, and the courts of New York have held that under the statute there, the Commissions have no power to impose conditions. Any stocks or bonds of a public utility which are issued without an order of the Commission are void and the Commission has the power to see that the proceeds of such stock and bond issues are devoted to the purposes set out in the law and in the order of the Commission.

While it does not have a direct bearing upon the divided authority over utilities, yet the court procedure for which the Public Utilities Act provides is worthy of note. Heretofore it has been the practice often of public utilities to state very little of their cases before the Commissions and then attack the orders of the Commissions in the courts and produce the testimony before the courts which had been withheld from the commissions. Our Act provides that no public utility may go into the court until it has asked

for and has been denied a rehearing before the commission, and it may only present to the courts those matters of evidence which have been theretofore presented to the commission. The resort is directly to the Supreme Court of the State by means of a writ of review. This method insures a complete presentation to the Commission of all the facts surrounding the questions in issue and enables the Commission to render its order with all the evidence before it which will be necessary to a correct decision.

The regulation of public utilities other than railroads in all of the states has been a growth and the first steps have usually been taken within the cities. Most of the states sought to regulate their railroads through state authority, usually through Railroad Commissions, but provided no state wide regulation of other utilities. Proceeding from the exercise of their police power, the cities have gradually been permitted to extend their authority until in many states the cities now have all the authority that the municipalities of this state enjoy. But in by far the greater number of states, until very recently, there has been no attempt on the part of the state to regulate utilities other than railroads outside of municipalities, and hence we have had a condition grow up which has produced regulation of street railroads, gas, electric, telephone and water and similar corporations within the cities and has left these corporations free to work their own will as to all unincorporated territory. An incorporated city has certain boundaries but these are not recognized in a telephone exchange or a gas or electric plant, and now by the rapidly increasing suburban population, brought on

by the extension of rapid transit facilities and the enlargement in the use of telephone, light and gas service in the farming communities, we have thrust upon us a condition wherein a utility serving a city in no wise limits the scope of its operations to the borders of such city, and hence arises the problem of divided regulation. As I have already said, many of the states have not yet provided for the regulation of their utilities other than railroads in their operation within unincorporated territory. From a cursory inspection of the statutes this appears to be the case in Alabama, Arkansas, Colorado, Delaware, Florida, Idaho, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oregon, South Dakota, Tennessee and Texas. Neither Utah, West Virginia nor Wyoming have any railroad or public utility commission and do not even regulate their railroad companies. New York and Wisconsin are the most striking and important illustrations of entire control over all utilities, both within and without municipalities by the state authorities. Nevada likewise adopts this method of regulation, as does New Hampshire, Ohio, Rhode Island, Vermont and Washington. From the necessarily incomplete examination given to the statutes and constitutions of the various states, it may be that in some particulars I do not correctly state the local conditions exactly in the states here named, but the general situation is, I am sure, as I have outlined. The remaining states either have divided authority or the question of jurisdiction is doubtful. The only state whose scheme of regulation is closely analogous to that prevailing

in California is Kansas, and in that state there exists a form of appeal from the city authorities to the Public Utilities Commission, which scheme would be impossible under the constitutional provision obtained in California under the decisions of our Supreme Court. New York and Wisconsin both provide for the regulation by the state authorities not only of private corporations operating within cities but also of municipally owned plants. In this state, the jurisdiction of the Commission is limited by the Constitution to private corporations. Certainly municipally owned public utilities are not subject under the Constitution of this State to any regulation by the Railroad Commission as to their operation within the municipal boundaries. As to regulation of such municipalities in any utility business which they may conduct outside their boundaries I shall have more to say later.

I have thus sketched briefly the machinery of regulation in this state and have tried to distinguish the power of the state under the scheme of regulation existing from the power conferred upon the municipalities. The reference to the laws of other states is for comparative purposes and may be used in our further discussion of this question.

I do not here question the propriety of a municipality exercising such powers of regulation over utilities operating within such municipality as do not necessarily affect the patrons of such utility without the boundaries of the municipality. If a utility confines its operation entirely to the territory within the corporate limits of a municipality, then such municipality should have the right to control the

operation of such utility. While I concede the right I do not now commit myself as to the policy of such action. This is in line with the now generally accepted American Doctrine of permitting to localities that degree of self-government which is possible without interfering with the rights of people who do not live within such communities. The design of the Federal Constitution is to retain in the states all such powers as are necessary to the protection of the rights of the inhabitants of such states when such retention of powers may not interfere with the general welfare of the people of the entire nation, and only such general powers are conferred by the several states upon the Federal Government as are necessary to deal with the national as distinguished from state problems. The relationship which should exist between the city and state is analogous to this relationship which exists between the state and the nation. There is this legal distinction, however, between the cases: The state is the original repository of the power and the nation only secures such power as is granted by the states and likewise the city only has such power as the state concedes to it. This legal difference, however, does not affect the analogy. The utmost limit of self-government is government by individuals. That is, if it were not that individuals occupy relationships to other individuals which make it improper for each individual always to determine his course of conduct, then there should be no law except the law of the individual. In other words, the limit of democracy is anarchy as it is conceived by its intellectual exponents.

If it were not for the element of selfishness which enters apparently into the makeup of all living things, and if each individual, in addition to being purely unselfish, were so clear of vision as to be able to determine always a proper course of conduct, then there could not possibly be any conflict between the rights of individuals, and the position of the anarchist would be the one to be desired. In fact, it is very doubtful, if we agree that a man is a free moral agent, that he should not always attempt to do just exactly as he pleases. The thoughtful man, however, must realize his limits and he should believe that ordinarily those customs or laws which have met with the approval of a great many other men, even though they do not meet with his approval, are very likely to have reason behind them. But if, after a careful consideration of such laws and customs, his intelligence still leads him to believe that such laws and customs are wrong, I imagine that as a member of organized society he, like Socrates, must bow to the law, even though he disagree with it, and try to change, not break it, for, as was pointed out by Aristotle and later by Hegel, he must realize that he has no existence independent of society and that society has certain claims upon him which will prevent him in a great many instances from following his own desires. I do not intend to enter into an extended philosophical discussion of the principles which underlie the subject we have before us, but I believe it is well for us to have clearly defined the limits beyond which local regulation may not go, and it is just as logical for us to say that a city may have a right to regulate everything

within its borders as it is for us to urge that a individual shall have the right always to determine his own conduct. It is an inspiring thing to know that as a free moral agent the individual can always exert his own will, but it is likewise profoundly true that in very few instances can he make that will efficient if it is counter to the good of his fellows or even what his fellows consider their good, and likewise it is very desirable to feel that the city is the master of its own destiny as to all its city affairs, but here, too we must realize that the city not only should not, but cannot for any great length of time, regulate its own affairs, if by so doing it interfere with the welfare of others without its gates.

Therefore, we are coming back to our original promise that the city should regulate those things which are peculiar to the city, but should not regulate those things which may, directly or indirectly, affect others who are not of its population. The legal maxim that a man may use that which is his only in such a way as not to injure another, applies, I believe, with equal force to a city in the use of its powers, and I might also say as well to a state and to a nation. If the inhabitants of a city were wholly devoid of selfishness and also omniscient, then those people who are so unfortunate as to live outside the boundaries of such city might have no fear that any act performed by the governmental authority of such city would be detrimental to the interests of any one. But I have a suspicion that the same selfishness which we find in the individual permeates aggregations of individuals and that a city may sometimes do those things within its boundaries which, although advan-

ageous to its inhabitants, are detrimental to others. We have heard much in our history of taxation without representation. Regulation by a city which directly or indirectly serves to regulate the affairs of others without the city is as to those others regulation—which is a form of taxation—without representation, and has the same injustice inherent therein as taxation without representation. Therefore we must be very slow to make up our minds that a city should have the right to regulate the affairs of a utility operating within the city, but likewise serving its commodity to other sections, until it appear that the action of such city cannot work injustice to the other patrons of the utility to be regulated. Once I thought that the sense of justice which is supposed to be present with all men would prevent a city from regulation which had merely in view the interests of the inhabitants of such municipality, but being more sophisticated now, I no longer hold this view, and here is the reason for my change of mind: Under the certificate of public convenience and necessity which requires a public utility desiring to enter territory already served by another utility of the same kind, whether such territory be within or without a municipality, to apply for permission so to do, it has been necessary for the Railroad Commission to investigate the attitude of municipal authorities in this regard. I believe those of you who have studied utility questions—and I assume this comprehends you all—know that rate wars cannot ultimately be of benefit to the patrons of utilities engaged in such strife. Likewise that where a territory is completely ser-

ved with the utility, that the advent of a second utility of the same kind means duplication of service and hence necessitates a return on an unnecessary amount of property, if rates are to be fixed with relation to the value of the property involved. Bear in mind, that what I say here applies only to territory **completely** and adequately served. Yet in investigations concerning the issuance of a certificate of public convenience and necessity we have found that sometimes the attitude of the city authorities is that they are willing that a second utility should come into their municipality and duplicate service and cut rates below a reasonable scale and recoup itself if any loss be entailed in such city from territory wherein competition does not exist. In fact, we have had this directly admitted by city authorities under oath before us, and this in disregard of the fact that such utility must inevitably make unreasonably high rates elsewhere or drive its competitor out of business in the competitive territory and thereafter recoup itself from the very patrons who have assisted in destroying the weaker competitor. These practices have prevailed in so many sections of the United States and on such large scales, as has been demonstrated again and again, that I had thought that selfish considerations, if none other, would prevent municipal authorities from taking the position we have found some of them to take, but, as I have said, I no longer entertain such belief as to some of the city authorities in the state at least. Of course, the people of Los Angeles and the city authorities of this magnificent and progressive city would not be either so selfish or so foolish as the city authorities to whom I have re-

ferred, but even here we find, if I am correctly informed, that it is urged by some that because of the fact that the people of this city generously and far-sightedly went into their pockets to construct the aqueduct and bring water through the mountains for their use and for the use of much of Southern California, that by reason of that fact they should have not only the legal but the moral right to charge to the consumers of this water in territory not within the municipality "all the traffic will bear." At the risk of treading upon the toes of some of my very best friends, and impliedly criticising those concerning whose integrity and fairmindedness I have no doubt, I will say, that I believe the City of Los Angeles has neither the legal nor the moral right to do any such thing, and I would further say that, in my opinion, the attitude in this regard is no better than the attitude of the transportation companies that have been urging as to this city and this state that they have a similar right to charge all the traffic will bear. The people of Los Angeles should pause and determine just what this doctrine means before they finally adopt it. As naively put by Commissioner Gordon of the Railroad Commission of this State, in discussing this theory with a traffic man, this doctrine means "beating the competition where it exists and soaking the non-competitive points. This is what it means when applied to railroads. Of course, I assume that its apologists will say that it does not mean the same when applied to Los Angeles. As applied to railroads it means, as a traffic man recently said, the driving of ships from the sea and the neutralization of the competition of the water. By putting in rates at some points that prevent

the ships from doing business or securing control of the ships, and thus preventing them from giving the public any advantage from the water highway, the railroads have in times past driven the ships from the sea, but the people of the State of California and all other states of the Union have helped to pay the expense of this driving the ships from the sea. "All the traffic will bear," means that the necessity of the farmer is the limit of the freight rate: that is, he is charged a rate that will at least usually get his produce to market, for if he is charged a higher rate than this it pays him to let it rot. The same necessity which causes the farmer to pay the high rate in order to move his traffic will cause the irrigator to pay a high rate for his water, particularly after he has once brought his land under irrigation, and must, of necessity, by reason of the character of his crops, have water in succeeding years. The duress which may be resorted to by those in charge of water for public distribution has often been commented upon by the courts in determinating the rules for regulating irrigation companies, and the City of Los Angeles would have the same power, if it is permitted to charge all the traffic would bear, that private corporations have. I understand also that it is urged that the City of Los Angeles by generously expending its money in this extremely laudable undertaking and in bringing water to these thirsty lands, is enhancing the value of these lands, and that the enhancement should go to the City of Los Angeles. The railroads argue before us that they, by building into a territory, have enhanced the value of the lands, and therefore should have higher freight rates. I believe that the

people of Los Angeles are entitled to great consideration for having consummated this wonderful enterprise, and that those who jointly share with them the benefits should jointly assume the burden, but I do not believe it is any more justifiable for those who share the benefits with the City of Los Angeles to bear an undue proportion of the burden than it is for the railroads, because its bondholders have paid in the money for its building, to take the unearned increment in the territory through which it passes.

So far I have only dealt with what might be called the moral aspect of the case. I have gone no further than to say that as to a utility operating within and without a municipality, the authority of such municipality should not exercise such control over said utility as will permit the imposition of an undue burden upon the outlying territory. It will be necessary, however, before finally determining the advisability of divided regulation to decide in what cases the exercise by a municipality of the power of regulating such utility will put it in a position to burden outlying territory, and as to all other cases, what I have said on the moral side of this matter has no application. Before this, however, before finally determining the advisability of divided regulation to decide in what cases the exercise by a municipality of the power of regulating such utility will put it in a position to burden outlying territory, and as to all other cases, what I have said on the moral side of this matter has no application. Before doing this, however, it will be advisable to discuss any practical difficulties which may be presented by divided regulation, and thus have before us all the factors

which go to determine whether or not our divided regulation as it exists in California, is better or worse than state control. I have heretofore said, that as to utilities whose operation is limited to the confines of a municipality, I see no reason in public policy why the municipalities should not regulate them. I am aware of the fact that very often it is urged that even these utilities should not be regulated by the city because, an interested party, the the judge of its own case. While to a limited degree this may be true, yet all outside regulation, whether state or municipal, is in a measure open to this charge. As members of the public in whose interest primarily regulation exists, and not pecuniarily or otherwise interested in the public utility to be regulated, public officers are to some degree interested parties. Then too, it is said that city regulation requires the utility to go into city politics. If such be the case, I see no reason why state regulation does not also require the utility to go into state politics. We, in all of the cities and all the states, have heard much of cinch bills and unjust decisions against utilities by public officers. I have had some enlightening experience as a member of the California Legislature,—and I do not know whether or not this audience will expect me to apologise for having been a member of the Legislature, but in California, at least at the present time, it is not dishonorable to be a member of the Legislature. But while at Sacramento, as a member of a legislature whose majority at least was not antagonistic to the utility interests of this state, I found it invariably the case that the independent legislator always opposed the so-called cinch bill which the subservient and

owned legislator always introduced. The participation in politics of the public utilities, which they justify as a necessity because they must be protected from the action of dishonest officials, is directly responsible for the election of these dishonest officials. As with the state so with the city governments. Public utilities can always get a square deal from honest men to the limit of their knowledge, and the way to get this square deal is not to attempt to elect dishonest men to office who are subservient to the utilities, but to keep out of politics and allow the people to elect their own officers, and then play an open game before the authorities, presenting instead of suppressing evidence, to the end that these honest officials may have sufficient knowledge properly to decide. Therefore I still say, that a public utility, operating entirely within a municipality, quite properly should be regulated by such municipality and that such a method of regulation is directly in accord with the spirit of American institutions. Hence, I limit the doubtful cases to those that involve the regulation by the city authorities of a portion only of the business of public utilities affected. As I have already said, ordinarily the limit of a telephonic exchange is not the city boundaries, nor does a gas or water corporation limit its activity to one municipality. In the fixing of rates a knowledge of the fair value of the property which is properly attributable to the portion of the rate bearing public for which rates are desired to be made must be known, and likewise the amount of operating and other expenses incident to the furnishing of the utility must be considered. In by far the majority of the cases where a utility does business in two or

more municipalities, or in one municipality and outlying unincorporated territory, it is practically impossible to determine the proper value of the property of the utility within the city which is necessary to its service without the city, and the same may be said for the distribution of the operating expenses and revenue. How difficult it is to determine what portion of a telephone line, for example, serving municipal territory and territory without, shall be apportioned to the city and what portion to the unincorporated territory can only be realized by the person who has tried to perform the operation. Some one may think, superficially, that the division should be in proportion to the number of miles or feet of line within or without the municipality, but such person is overlooking the fact that all of the line within the municipality is necessary for the service without the municipality and the portion of the line outside the municipality is also necessary for all service from points without to points within the municipality. The same may be said for income and operating expenses. The same practical difficulty suggested here is presented by every aspect of regulation where we have divided authority such as exists in this state. The only possibility of arriving at a near approximation of correct results is by taking all, or a sufficiently large portion of a utility business, preferably the former. The exchange apparatus of a telephone company is necessary to its toll business, and vice versa. The city mains of a water company are necessary to its distribution system in any other city in which it may operate. The electrical transmission wires which

bring hydro-electric energy from the mountain sources are just as necessary to the distribution of light and power in the City of Pasadena as in the City of Los Angeles and to the suburban territory of Los Angeles County as to its smaller municipalities. The maintenance of these power lines and the power houses and the dams is essential to the entire service of the power company. We have power companies in this state which furnish light and power to scores of municipalities and counties and for the fixing of rates in the smallest of these municipalities it is essential to know exactly the same things about the revenue and expenses of these companies as would be necessary to be known by a rate fixing body which would fix the rates which should exist for all patrons in the territory served. I do not mean to convey the impression that the larger authority would fix a flat rate for the entire territory. What I do mean to say is, that the larger authority would fix the same sliding scale for utilities and make it applicable to the entire district as would be necessary to be fixed by the municipal council and that the larger authority could much more easily secure the data necessary to be considered by it than could the municipal authority, because this latter authority would have to secure the information necessary to the former and make the segregations and apportionments which are not necessary when the entire business and the entire rates are in contemplation.

Therefore, as to utilities operating other than entirely within one city, divided authority means duplication of work as many times over as the authority is divided and from an eco-

nomical and practicable aspect it is a waste of governmental machinery to use a half hundred agencies in doing that which can better be done by one. All of you know the many difficulties that are presented to a city council in fixing rates and regulating service. Inadequate apparatus and the proneness of cities to expect their officers to serve for inadequate or no salaries makes it practically impossible for them to determine the facts, and this condition is ideal for fostering litigation. Nothing is so desirable from the standpoint of a utility which desires to defeat regulation than a condition which prevents the local authorities from securing adequate information and likewise permits the tying up a dozen city ordinances where state regulation would only present for attack one order for the same territory and in order which in the very nature of things would be fortified by a much more thorough investigation than can possibly be made by unpaid city authorities with inadequate funds for investigating purposes.

Nowadays it has become the custom of public utilities to clamor for state regulation and this has caused many people to be suspicious of such regulation. I believe such an attitude on the part of the public utility is a hopeful one. No one who has followed the political development in the United States, in national, state and city governments, which has been going on in the last decade can fail to see that the people of this country have decided that the government is greater than the great corporations:—that the creator is greater than its creature, and the wise utility manager confronting the pent-up wrath of the public which has been so long in the forming

and which is directly due to the iniquities that have been worked upon the public by utilities in the past, sees that for him and for his institution, regulation or a worse fate is in store and he flies to regulation as his only salvation. No longer may the public utility, connected through the boss with the underworld, control the destiny of any city of the United States for any appreciable time. No longer may the great railroad enterprises, holding together the bosses in the various cities, control the states, and the utility enterprises and the other great corporate interests realizing, as I have said, that regulation for them is the only escape from the further anger of the public and possibly final confiscation, or at least extensive reprisals, and facing clear decisions of the Supreme Court of the United States which strengthen the arm of the public authorities against them, are now proposing to accept regulation and accepting it, they are desirous that it be as efficient as it may possibly be. Consequently they view with more approval one tribunal, amply equipped, that shall deal effectively and expeditiously with the problems presented to it than the annoyance of scores of city councils each, as I have said, poorly equipped, to attack these larger problems. Of course, in the larger cities, like San Francisco, and Los Angeles, there could and should be adequate funds provided and reasonable salaries for those engaged in this work and the rapidly increasing number of municipally owned plants will make necessary the training of experts and the expenditure of money in this direction. I am firmly convinced, however, in the absence of municipal ownership of utilities and utilities operating as

they now do in more than one city, or in city and county territory, that from a practical standpoint the state and not the city should deal with them.

Referring again to the moral aspect of the question, even a superficial view will show that the city which regulates but a part of a utility has it in its power so to act as to effect other territory. Under similar circumstances the rate in a city should be the same as the rate without the city or the rate in one city should be the same as the rate in another and the standard of efficiency should likewise be the same. Therefore in every instance where a city authority fixes rates without adequately considering the entire business of the utility on the hit or miss plan which has heretofore been an absolute necessity in most cities by reason of the facts to which I have already referred, such city may, and often does, by chance fix a rate which is not just to the outlying territory and which will yield an amount less than should be yielded for the service, thereby decreasing the revenue of the utility and this decrease will affect the entire revenue and when the larger authority considers the business of the utility operating within this city for rate fixing purposes, in outside territory, it will be presented with a revenue which will be less than it should be by reason of the, too low rate within the city and thereby if it is just to the utility it must fix a rate which is on the average too high for the outlying territory. Thus the very inability of the municipality adequately to determine the questions of rates and service in many cases works an injustice to other consumers of the utility, and until these cities are prepared to deal with this question as its importance de-

mands, they should not in justice desire to deal with it at all. The careless attitude of the cities, particularly the smaller, and I have urged that some of the larger ones are sometimes likewise careless, necessitates in many instances either an injustice to consumers outside the cities or upon the utilities themselves, and when we consider also the attitude of those city authorities, very few in number I am glad to say, who believe that their city should get all it can out of a utility, even at the expense of other consumers, we have plainly presented to us a moral reason in addition to the very cogent practical reason against dual regulation.

I hope I have not been unduly critical in this paper, as it has not been my desire so to do. I have presented to you the practical difficulties of the system under which we are now operating and I am firmly convinced that my attitude is the correct one. Just as I believe from a practical standpoint that a utility operating within a city and without the same should not be subject to the jurisdiction of the city so I am convinced that a railroad operating in more than one state should be subject entirely to regulation by Federal authorities and not to the state authorities. In saying this, however, I do not desire to lend aid to the scheme which is now being actively urged upon the courts by the attorneys for the railroads whereby the state shall be divested of authority and no power added to the Federal authorities. The so-called Sanborn decision of the Circuit Court of the United States, rendered at St. Paul in Shep-

ard vs. Northern Pacific, does not in my opinion add one vestige of power to the Interstate Commerce Commission, while if it should be sustained by the Supreme Court of the United States, would very largely interfere with the power of the states to regulate the State business of carriers. Until we confer all power over railroads upon the Federal Government, of course the states must continue their authority as to state business. I make mention of this now in passing to show that I believe in the universal application of the doctrine which I have here enunciated with reference to city regulation of utilities. I am free to say, however, that when the business of a railroad is largely within one state, fewer practical difficulties are presented to the state authorities engaged in regulating it, and the same condition exists when the percentage of the business of a utility within a city is high.

We are all interested in good government for the city and the state and the nation, and it is only by a careful, conscientious study of these great questions involved in the regulation of public utilities that we can properly solve them, and I congratulate this body for the magnificent work which it has performed in the many cities in this Nation and for the large part which it has heretofore played in bringing to the people of the municipalities that government which they should have, and I have no doubt that in the future your active participation in the problems of the cities, both as they affect the city and the state, will lead to still larger results.

THE PUBLIC UTILITIES ACT

BY JOHN A. BRITTON

A commentary written expressly for Pacific Municipalities by John A. Britton, President of the Pacific Gas and Electric Company.

The legislation enacted by the California State Legislature last winter for the regulation of public utilities is now quite an old story. The Public Utilities Act under which the control of public service corporations passed into the hands of the State Railroad Commission went into effect three and a half months ago, and more than one trial of it has already been made. Consequently, it is to the present and not to the future that I must address myself in discussing this new order of things and its effect upon the public utilities and the public they serve and the relations of one to the other.

It should not be necessary for me to state here that I am most heartily in favor of any law providing for the systematic regulation of public service corporations of the state by a competent and properly constituted official body. Something of that kind has been badly needed in California for a very long time. A public service corporation operating over a large territory, taking in a number of counties whose interests are more or less diversified, is necessarily put to a great deal of inconvenience, not to say hardship, when its conduct and operations are subjected to investigation and control by each of the several communities it serves. Local conditions govern local events, and consequently, the points of view differ.

Further, it is hardly reasonable to expect that any body of citizens such as, for instance, a board of supervisors, can acquire a sufficient technical acquaintance with the workings of a great public service corporation as to qualify them to pass upon matters, which, with the officers of the corporation themselves, are a life study. It follows, then, that a Public Utilities Commission, composed of men specially selected by the appointing power for their qualifications of training and experience should be the best possible medium or instrument for the settlement of the much discussed public service question in the interests of the public utilities themselves as well as of the great public whose rights are to be protected.

That the Public Utilities Act is already proving of great service to the commonwealth of California there can be no question, in my judgment. There will be differences of opinion from time to time between the public service corporations and the Commission, and it may be that few decisions rendered by the State Board will be regarded as entirely satisfactory all around and escape criticism from some quarter or other. But I take it that the question is one of the greatest good to the greatest number, and for myself, representing as I do in an executive capacity one of the largest public service corporations in the country, I can say without fear of contradiction that on the day in March last, when the Public Utilities Act went into operation, a very great burden was lifted from the

shoulders of every public utility in the State of California.

Two very distinct benefits to the corporations themselves must accrue from the operation of this Public Utilities Act. First, in regard to the rate question. The public service corporations in general, and particularly those engaged in the light and power business, have encountered very great difficulties in the past in their endeavor to make the public at large understand the system upon which their rate schedules are based. There has been engendered in the minds of the people a feeling almost of hostility toward the public utilities on this question, and no amount of effort on the part of the latter in the way of instructive publicity or demonstration has been powerful enough to clear the atmosphere of the clouds of suspicion, not to say distrust, that have arisen. To quote the words of a famous light and power expert at the recent National Electric Light Association's Convention at Seattle, "The people have been lead to believe that there is something wrong somewhere." Then again, it has been difficult to impress upon the rate-fixing bodies in the several communities in which the public utilities operate the necessity as well as the justice of taking each and every one of a long list of items into consideration before arriving at an estimate of the rate to be charged in order to give the particular corporation a fair return upon its investment. These items, of course, include first cost, cost of operation and maintenance, depreciation, obsolescence, inadequacy, and provision to meet the ever growing public demands.

The necessity for advance construction, for instance, is one that very sel-

dom appeals to a body of laymen invested with rate-fixing authority. Also there is the financial question, one of immense importance to any public corporation that is launching out in every direction in order to keep abreast of the times.

It should not be necessary for me to remind the thinking public that a great public utility such as, for instance, the one I have the honor to represent is in constant need of money, and large sums of money, for reconstructions and extensions that are made matters of almost daily demand by the growing population, industrial and agricultural development, advance in science and what not.

Now it is with this rate question, save and except in such municipalities as are exempt from the operation of the Public Utilities Act in this respect, that the Railroad Commission is dealing at the present time. The fact that it is so should in my opinion, tend to relieve the situation to a very great degree. The public no doubt has implicit confidence in the Commission, so that when that body has given its official sanction to a schedule of rates and charges for the service supplied by a public utility, that public utility is protected in a measure by that decision against unreasonable suspicion and the sort of popular agitation that has been stirred up against it in the past.

Another benefit that the public service corporation should derive from the new order of things is the removal of unfair competition by mushroom concerns entering the field of public service enterprise without legitimate excuse for their presence. It should not be necessary for me to explain my meaning. The public service corpora-

tions in the past have been harassed very seriously by the so-called competition which has not been offered in good faith. It has not been an uncommon thing for a franchise to be applied for in a field already occupied by another company when the evident purpose of the applicant has not been to enter the field against that company in honest and open competition, but merely by means of a rate war and other devices compel that company to buy it out.

Adam Smith once said "Competition is the life of trade". Possibly that was true at the time he said it. It might be true in a measure today, were there no such thing as laws of regulation and control, but as the situation stands now competition comes very near being the death rather than the life of trade. Duplication of plants and equipment means doubling the investment, on which the public sooner or later must pay interest. Throughout the length and breadth of this land there is but one opinion expressed amongst men who have given to the public service problem the study of a lifetime, and that the only way to handle a public utility for the benefit of the Commonwealth is as a well regulated monopoly.

And this Public Utility Act I am discussing is aimed to provide against all useless and unnecessary competition. The State Commission is given power to forbid the entrance into a field of activity of any would-be rival to the utility already on the ground. It is a matter in which the Commission is given discretionary power, but the law is very plain in providing that the privilege to enter the field of competition can be given only upon a showing that such privilege is demanded

by either public necessity or convenience.

The question whether the State Commission should be given absolute authority over all stock and bond issues to be made by public service corporations is still a matter of debate.

There is this to be said about it, however, that such authority will have the effect of strengthening the values of public service corporation securities. In a word, the Authorization of the Commission may be regarded as the official stamp upon the stock certificate or bond that will vouch for its face value in the open market.

Of course, it cannot be expected that any radical departure from the old established order of things will be absolutely perfect in detail at first, and in my judgment the Public Utilities Act as it stands at present is not without its faults. In the first place it is my opinion that before the regulation of public utilities by the State Commission can work entirely to the satisfaction of all parties concerned it must be unhampered by local restrictions. In other words, it must be state-wide. It is a matter of regret that the State Legislature in passing this law elected to allow the cities and towns of this state to retain the powers vested in them by their charters and state laws so that in cities such as San Francisco, Los Angeles and the like, the question of rates for instance is one to be decided by the local authorities. Taking San Francisco as an example the following situation is presented: The Railroad Commission has authority over any public service corporation operating in the metropolis to the extent of passing upon its stock and bond issues, directing its operation in the way of new construction, betterments,

improvements, etc., but there the gates of the city are closed upon it, and the Board of Supervisors or Municipal Council within those gates has the power to dictate what rates that corporation shall charge the public for its service and base its decision upon calculations and estimates of its own. The result is a clash of authority that is better calculated to work an injustice to the public utility than to the public at large.

The Public Utilities Act provides, of course, that any incorporated city or town desiring to surrender its authority over the public utilities operating within its territory may do so at an election called for the purpose; but it also provides that the same body of electors may re-consider their decision and take it all back at a second

election any time they choose. It is difficult to foretell the result of a series of elections to be held in the various cities and towns embraced by this provision. It may be that all are not of one mind in this regard. But I hope the day will come when either by the will of the people themselves, expressed at special elections in the several communities to which I have referred, or, better still, in my judgment, by a sweeping amendment to the act now in force, the authority of the State Railroad Commission over the public utilities will be made statewide, and not, as it is now, hampered by restrictions which threaten to stand in the way of what was intended to be a solution of the public service problem entirely satisfactory to all parties concerned.



THE GERMAN AND THE AMERICAN CITY

BY FREDERICK C. HOWE IN SCRIBNER'S MAGAZINE

(Continued from June number)

Tenure of office is permanent. If a mayor is re-elected, after his first term of twelve years, he holds office for life. When a vacancy occurs, the town council sets about to fill it much as the British city finds a clerk, or dent. From the candidates who present themselves from all Germany the council makes a choice, to which choice the Kaiser must assent. Approval, however, is rarely withheld. But the right of rejection exists, and did the city make an unwise choice or select some one who was *persona non grata* to the Emperor another person would have to be found. Official

salaries are relatively high, about as high as they are in America. They range from \$3500 to \$7000 in the larger cities, while the salaries of the assistant Bürgermeisters are about one-half of the sum paid the mayors.

The assistant Bürgermeisters are chosen by the same method. They are experts in finance, law, engineering, education, architecture, or city building. The number of assistants varies greatly. In Berlin there are seventeen, in Dresden thirteen, in Munich sixteen, in Frankfort nine. These experts devote their entire time to the city. They guide the deliberations of

the committees of the council and along with the mayor form a sort of cabinet for the planning of the city's development. They are an upper, expert, permanent legislative and administrative council.

In Great Britain permanence of policy is secured by a staff of paid employees, who along with the clerk are rarely changed. The English clerk is a dignified, expert, and highly paid official. He holds the thread of city administration in his hands, and along with the permanent staff of department heads secures that continuity of policy which has made the British city as efficient as it is. But the British city, with all its honesty and efficiency, does not compare with the German city in far-sighted policy and many-sided development. For the program of the British city is dependent upon the hazards of elections and the will of very critical and almost penuriously cautious rate payers. In Germany, on the other hand, the permanent official enjoys the real as well as the titular power, and by reason of the assured permanency of the propertied class in the town councils there is no motive on the part of any one for a change.

Except in the management of schools, libraries, art galleries, museums, and the like, we have made no attempt to introduce this element of permanency into city administration. We select the presidents of our universities and the heads of business houses from a trained class and call them from any section of the country, but a sense of local jealousy has prevented the selection of any but local men for municipal office. And until we do secure this expert element, and with it a continuity of policy, it

will be difficult to elevate the city much above the purely political plane which it now occupies. Possibly government by Commissions which is rapidly superseding every other form of city government and the election of local officials on a non-partisan ballot will tend to bring this about.

The town council in Germany is the ultimate repository of power. It is chosen by the electors. It draws to itself a high order of talent. It is rather anomalous to find in Berlin, for instance, that all of the elected members of the Reichstag are Socialists, while the city council contains but a minority of them. The explanation is to be found in the method of election. Members of the Reichstag are chosen by manhood suffrage. Every man is equal at the polls. In the city, however, men vote as tax payers and not as individuals. The voters are divided into three classes. Those who pay one-third of the taxes elect one-third of the council; those who pay another third of the taxes elect another third, while the great mass of the people, who, under the income tax, pay the remaining third of the revenues elect the remaining third of the council. I heard of one city where a single man elected one-third of the council, and of another where one hundred and thirty persons did so. In consequence the German city is far from democratic, possibly less democratic than any of the cities of Europe.

The German city is governed by its big tax payers just as the British city is governed by the capitalist class. But the result of this dominance of property at the polls has been diametrically different in the two countries. The German city is bold, generous, enlightened, and humane. The English city

is timid, cheese-paring, and far less thoughtful of the poor than even the American city. The German city seems to negative the class-conscious theory of politics. For the capitalistic class has socialized one industry after another. It has taken over the street railways, the gas, water, and electric-lighting enterprises, and burdened itself with taxes for education, recreation, and the relief of the poor in a way that gives color to the suggestion that Germany is meeting the progress of socialism by a large amount of social reform or "State Socialism."

And the rich tax payers in control of the city pay the city's bills. They pay almost all of the taxes. This is another anomaly which distinguishes the German from the British city. And it is the more anomalous in view of the fact that they could have shifted a great part of the taxes onto the poor. In recent years they have completely revolutionized the taxation of property and still further burdened themselves. From one-half to two-thirds of the taxes are collected from incomes, those below from \$105 to \$225 being exempt. The city is the fiscal agent of the State. The local income tax is based on the State rate. If the State tax on an individual income amounts to \$100 the local taxes range from \$100 to \$300 more, i. e., the local rate is from 100 per cent to 300 per cent of the American railroad finds a presithe State rate. In Wiesbaden the local income tax rate is 100 per cent, in Düsseldorf 140 per cent, in Frankfort 99 per cent, in Barmen 210 per cent, and in Berlin 100 per cent. Taking the thirty-four largest cities the rate averages 154 per cent of the Prussian rate, and including the State rate, amounts to from 8 to 16 per cent of

the incomes of the well-to-do class. The total income tax for State and local purposes averages about 10 per cent. Some towns have so very few rich men that the local rate is even higher and reaches as much as 500 per cent of the State rate or possibly 24 per cent of a man's income in all. This, however, is exceptional.

Political experience would lead us to expect privilege to represent privilege and wealth to represent wealth. It does in this country. It does in Great Britain. In both countries it shifts the burdens of taxation onto the backs of the poor. This is not true in Germany, certainly not to the same extent as in other countries. Up to 1899 the Prussian cities collected a house and land tax assessed against the rental value of the property, i. e., upon what the owner happened to get out of the land. The property might be used as a cabbage patch. It paid taxes on its rental value as a cabbage patch. This is still the method of local taxation in vogue in Great Britain. It is against this system that the English cities are vainly protesting to Parliament. It encourages high rents and speculation, and is unjust to those who develop their property. In 1893 the Interior Department of Prussia authorized a change to the American method of assessment based on the capital value of the land. Immediately land taxes were greatly increased. In many cases the increase amounted to many hundreds per cent. The land speculator was discouraged. He was compelled to build upon his property or sell it to some one who would. But the reform did not end here. In 1904 the city of Frankfort decided to levy a special tax on the "unearned increment"—to tax the land speculator

still further. The city made a beginning of the single tax and now collects nearly one-fifth of its taxes from the speculative value which the growth of the city creates. In five years the Frankfort experiment has swept over Germany. It has been adopted by many other cities. It has been carried into Switzerland and has cropped out in Belgium. It inspired the Liberal Party in England, and promises to create an issue which will tax the political power of the landed classes in every country in Europe. The first skirmishes of the battle are now being fought in England, Germany, Denmark, Switzerland, and Belgium, where the conviction that the speculative value of the land created by the growth of the community belongs in reality to the city rather than to the individual who appropriates it has taken firm hold.

Strangely enough direct taxation does not lead to niggardliness in expenditure. Quite the reverse. The business men of Germany accept their burdens willingly and take pride in the development of the city. One never hears the everlasting talk about the "rates" so universal in Great Britain, nor do elections turn upon this issue as they do in the latter country, where the most eminent men are frequently defeated for the council for suggesting some needed park, library, housing, or health programme which involves a slight increase in the local rates. There is a penuriousness about city politics in Great Britain that is not found in either Germany or America. It is traceable in the former country to the method of raising local revenues by means of taxes on the tenant.

The German cities are even more

generous than our own. There is a big-mindedness about their outlook that is positively unique. The German protests against the cost of the army and the navy, he grumbles about the taxes on trade and inheritance, but he pays with willingness his taxes to the city. I have talked with men from every class, in a dozen cities, about the burdens of local taxation; I have asked why it was that the city went in for such generous expenditure for schools and parks, for the purchase of land and the erection of school buildings; why it erected splendid public buildings, art galleries, opera-houses, and contributed so generously to a hundred things which in America would be termed socialistic, and never but once have I heard a complaint. The business man and the workman united in saying substantially the same thing: "It brings business and people, it makes the city beautiful and a comfortable place in which to live"; or "we must have strong children if we would have good soldiers, and they must be well educated if they would be efficient." These and similar statements reflect the sentiment of the citizen and his pride in the city. This feeling is well-nigh universal. The German thinks it is good business to do these things, and that even the poorest receives a good return for the taxes which he pays.

Measured by the sacrifice involved, Germany spends more generously than any other nation for municipal purposes. The ordinary revenues of the city of Düsseldorf, a city of 290,000, from taxation alone are \$2,677,000. This is \$9.25 per head. Its other revenues, aside from loans, are \$3,125,000 more. Its current expenses amount to \$20 per head, and its total annual

budget to \$100 per head. Frankfort, a city of 335,000 population, raised the sum of \$4,860,000 by taxation in 1906 or \$14.50 per head.* Of this sum \$2,287,334 was collected through the income tax; \$96,383 by a tax upon vacant land; \$891,281 by a tax on house and land rent; \$465,784 by a tax on business, and \$979,999 from the tax on change in ownership and the unearned increment tax. The balance came from miscellaneous fees. No attempt is made to tax personal property in any form. Nor are there any octroi or indirect taxes such as prevail in the Latin countries.

It is quite possible that we should revise our ideas about the extravagance of the American city. Possibly we are niggardly in our expenditures for things municipal. Our failures may be traceable in part to this fact. For when we consider the difference in money values; that salaries, wages and the cost of all services are higher in this country than in Germany, it may be that we do not spend as much for city purposes as do the cities of that country. According to a recent Bulletin of the United States Census it appears that the average per capita expenditure of the American city is but \$15.82. Cities like Cleveland, Baltimore, Buffalo, Detroit, Milwaukee, and Minneapolis are lower still. The general and special service expenditures of New York are \$23.84 per capita. I appreciate that comparison with other countries are difficult and yet it seems very probable that one of the chief reasons for the superiority of the German city is to be found in the unsuspected fact that more money is

* These figures do not measure expenditure, as the cities receive aids from the State as well as substantial revenues from other sources.

spent in that country, relatively to money worth, than in this.

The German city is also heavily in debt. The debt of Düsseldorf is \$29,000,000, or \$100 per head. This is double the per capita indebtedness of the average American city of its size. Frankfort has recently burdened itself with a loan of \$18,000,000 for the development of its river frontage and harbor. Berlin has a total debt of \$99,294,500. Despite these heavy debts one hears no suggestion of bankruptcy. There is no legal debt limit, and the city can do about as it pleases in the matter of investments. "It is good business, the German official says, for the city to go into debt. The higher the debt the better, especially if it is incurred for productive undertakings which tend to reduce the tax rate. We would not say a man was bankrupt who had borrowed 60 per cent of his assets. Most real estate is mortgaged up to 50 per cent of its value, and why should not the city borrow on the same principle. We know that street railways, gas, water, electric lighting, and docks are profitable enterprises. They not only pay their way, but yield a profit as well. Why should not the city own these things rather than turn them over to private individuals to exploit?" This is the attitude of the official and the citizen.

The same is true of parks, schools, theatres, opera houses and the like. They pay their way, though not so directly. They bring visitors, they make the city attractive as a place of residence. This increases the value of property and in turn the basis of taxation. It is good business for the city to be as beautiful, as comfortable, and as attractive as possible. And there

is tremendous rivalry among the cities of south Germany to attract persons to them for purposes of residence and business. Of eight German cities with a total debt of \$172,536,000, all but \$62,306,000 is for street railways, gas, water, docks, etc., which yield a profit or will do so in time. In Düsseldorf 87 per cent of the city debt is for productive undertakings which more than pay their way.

The German city is as thrifty as the German trader. It is planning for dividends. It is looking forward to the time when the earnings from its enterprises will reduce the tax rate. It is even entering the real estate business with the same idea in view. It buys and sells land both in the city and in the suburbs. It anticipates its own development and as population grows it disposes of its land at a handsome profit.

But the motive of city building is not all commercial. The German has a wonderful pride in his city and is willing to make sacrifices in order that it will be beautiful. There is art in everything. And the streets, parks, open spaces, playgrounds, and boulevards are of the most spacious sort.

Within the past decade the Rhine cities have developed a wonderful system of wharves and docks, together with the most scientific cranes, tracks, warehouses, and handling devices for the purpose of promoting trade. Duisburg, Cologne, Düsseldorf, Mannheim, Frankfort, and others have expended tens of millions of dollars on these projects, and by so doing have trebled or quadrupled their business and greatly increased their population. All this pays. It pays handsomely, not only in health, in happiness, and in comfort; it pays in the language that the business man best understands. It pays in dividends. For the cities which do the most things and own the most enterprises have the lowest tax rate. They also have the most contented population. There is something reciprocal about politics. A city that serves the people as do Glasgow, Düsseldorf, Cologne,

Frankfort, and Mannheim gets a return in local pride and consciousness that is in marked contrast with the attitude of the people in such towns as Elberfeld, Barmen, and Essen, which have little ambition beyond the conventional preservation of the health, peace, and sanitary surroundings of the town.

But I have not yet touched on the thing that sets the German city apart and distinguishes it from all other cities in the world. The German official thinks in a different *milieu* than does the British or the American official that the city should do anything it sees fit to do provided it will improve the city, reduce the tax rate, or make it a more comfortable, healthful, or better place in which to live. The Anglo-Saxon, on the other hand, starts with an ingrained conviction that the city should do just as little as possible, and that any concession from this principle is fraught with extreme danger. The German has no prejudice against government: he does not look upon it as *per se* evil and inefficient.

The German *Bürgermeister* looks out from the city hall on his city as a whole as Bismarck looked out over the face of Europe. He builds as an architect builds a house or a railway promoter projects his railway into new territory. The city spends great sums to adorn its public bridges, school-houses, and public structures. It builds its streets so that they will last for a century, and lays its sewers, gas, water, and other conduits either under the sidewalk or so that they will not have to be disturbed. It employs the best sculptors to fill its parks with bits of marble, it tears down old sections of the city to clear away its slums or to secure proper settings or vistas for a public structure or to preserve some mediaeval building. It lays out broad boulevards and arranges them so as to secure fine vistas. Here and there a park or open space is located and adorned with a garden or playground, while along the streets clock towers, fountains, or pieces of statuary are placed. The main thoroughfares have

parkways in the centre and street railway tracks and bridle paths on either side. About the city are great parks and city woods, while in many cities the ring streets, constructed on the sites of the old fortifications, bring the parkage down to the heart of the city. There are few city halls in all America which compare in beauty and splendor with those of Munich, Hamburg, Leipsic, and a half dozen other cities. The cities also own opera-houses, theatres, and town halls where operas and dramatic performances are given, while the best of concerts may be heard by the city orchestra for an insignificant cost several times a week.

The same generosity is shown in education. The school-houses are of the most elaborate sort. Hospitals, convalescent homes, nursing establishments, and tuberculosis sanitariums in the country are the equal if not the superior of any in the world. Everywhere the architect, the landscape gardener, and the artist control the builder. Beauty is not a private esoteric privilege—it is the common possession of all. Every bit of water is jealously preserved and beautified. The banks of the city canals are clean and attractive, while the navigable rivers are not only the centres of recreation, they are the source of the city's

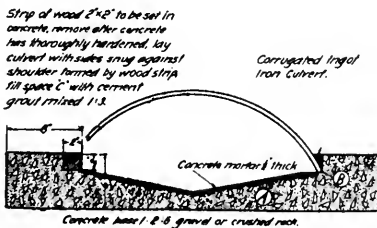
commerce and industrial development.

There is nothing that is tawdry, nothing that is cheap, nothing that is cheese-paring in German expenditure, relatively poor as the German people are. Germany almost alone in the world is building her cities with an eye to the future, conscious of the fact that the city is the centre of the civilization of tomorrow.

Government means much more to the people in Germany than it does in America. It means a thousand services which promote the health and the well-being, the rearing of strong children and efficient ones; it means the assurance to the people of the maximum of service at the minimum of cost in those elemental services which are a necessity of life. The German city seeks to make life as full of sweetness, of beauty, of variety as is possible through co-operative effort. Herein is the great difference between the German and the American city. The one remains an industrial accident, with the ideals of the successful business man, able to care for himself and wanting only to be left alone; the other is an organized, living thing with a big and far-seeing programme of the needs of humanity, and bending its intelligence and its powers to their satisfaction.

CORRUGATED IRON FOR LOW ARCH CULVERTS

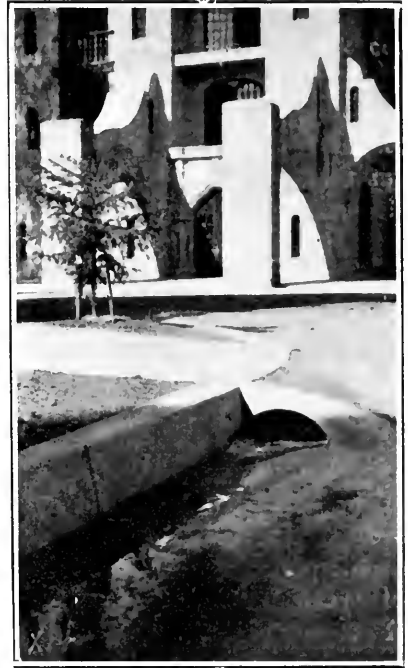
BY B. C. MARSHALL



One of the serious problems which has to be met by municipal and railway engineers is that of drainage at street intersections where the crowning is so slight as to afford but very little headroom. Any form of construction which cannot bear the stress of heavy loads and jarring impact without the protection of ample covering is absolutely negated by the conditions, for it is often the case that from two

to three inches is the most that can be had. Concrete water-ways covered with railroad iron or steel slabs are, in one sense, a solution; but the cost is all but prohibitive; and while building for the distant future is commendable on general principles, there are very many American cities where half a hundred plans of improvement are clamoring for attention at once, and where, therefore, the engineer must seek for methods and material which represent the golden mean between flimsy cheapness and impossible expense.

Generally speaking, corrugated iron culverts call for a covering of six inches or more, and in the ordinary gauges (sixteen and fourteen) will withstand the strain of traffic when so protected; but the surprising strength of this material in proportion to its weight, and the quality of elasticity which is, in this field, its exclusive possession, and which renders it almost immune from in-



jury by shocks or jars, point strongly to its use under severer conditions. It is of course apparent that heavier gauges should be employed. Twelve gauge corrugated iron is enormously strong, and is giving perfect service in many difficult situations, but the lower the arch in proportion to its width the larger is the circle of which it forms a part; and when this circumstance is considered in connection with an extreme thinness of covering and the heavy miscellaneous traffic of a city street, an iron of number 10 gauge ($9/64$ inch) in thickness is no doubt the best investment.

Care should be taken to see that the cement work is perfectly done, that the edges of the arch are absolutely reinforced and that ample time is allowed for the cement to set before loads are permitted to pass over the culverts. The use of a light angle iron along the edges of the part circle involves but



little additional cost, and is, to some extent, an insurance against the dangers of faulty installation.

The purest iron obtainable should be employed. The electrolytic nature of the corrosion of metals is now thoroughly established, and, as a consequence, the fact that the rapid corrosion of most modern iron and steel is due to the presence of impurities. Where an iron of a very high degree of purity is used, corrosion is very slow, even after the loss of the galvanizing; and such as does occur has none of the pitted or "tubercular" character so familiar in the ordinary product after a comparatively brief exposure to the elements.

If these recommendations are followed, we have in corrugated iron a practical solution of many of the difficulties encountered in the disposal of surface water in city streets.

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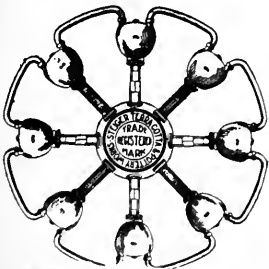
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QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry. When requested, inquiries will not be published.

Q. Is the Town Treasurer expected to attend any Trustee meetings to receive funds, when he has no regular office or place of business and is a hard man to locate? I am having some trouble this way and have to assume a financial responsibility which I do not like.

Ans. It is not customary for the town treasurer to attend the meeting of the town board. It is the duty of the trustees to see that the treasurer has some fixed time and place for transacting the business of the town. The town clerk is not supposed to perform the treasurer's duties.

Q. We have two water companies in our town. One Company has more pressure at times than the other, so we made the rate for one Company 50c a Hydrant and one dollar per Hydrant for the High Pressure Company. Now we got a notice from one Company that if we wished to use their water we would have to pay extra.

What would you advise if you did not want to pay any extra?

Ans. In a case where there are two water companies serving a municipality such municipality has a lawful right to pay a better rate for hydrant service to one of the companies in con-

sideration of receiving better service from that company; and maintaining a higher pressure is unquestionably better hydrant service.

If your ordinance has been so drawn as not to show any unjust discrimination between the two companies we would advise you not to pay the extra demand of the company in question, as there are many precedents sustaining the right of the municipality to give better pay for better service to a public utility company, and it is our opinion that the company in question will lose their case should they carry the matter to court.

Q. Would you kindly write me, what advantages a city of the fifth class has over one of the sixth? How many inhabitants must a city have so they can make up their own charter?

Ans. There are very few advantages which a city of the fifth class possesses over a city of the sixth class. In a city of the fifth class the municipality becomes a separate school district as soon as the city is so organized, and has a board of education of five members who are elected. It is mandatory to have an attorney in a city of the fifth class and he is elected, not appointed.

The taxes must be collected according to a specified budget, which might be a disadvantage sometimes.

The trustees are authorized to divide the town into wards in a city of the fifth class and have a trustee elected from each ward, which is not deemed a wise plan by the best authorities on municipal government. The

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following is a list of the fifth class cities: Bakersfield, Chico, Oroville, San Buenaventura, San Rafael, Santa Ana, Tulare, Visalia, and Woodland. You might write to them and find out what they have to say about the question.

A city must have a population of 3500 before they can make their own charter; the census may be made by the board of trustees.

Q. Please let me know by return mail the proper way of calling the Roll when the Board of Trustees take a vote on a question. I have been calling it alphabetically, but one of the Trustees thought that was not proper.

Ans. There is no established custom in regard to the roll call; the Board of Trustees may adopt a rule providing any method they desire. In some places it is done with a great deal of ceremony, while in others it is done in a most perfunctory manner. If one of the trustees thinks that calling the names alphabetically is not the proper way, it would be advisable for him to introduce a resolution or move to amend the rules and provide some other way.

Q. Can a police officer draw a salary from the time he has been suspended by the marshal until the Police Commissioners have held their meeting, in a city of the 5th class? As marshal I suspen-

ded the officer for insubordination and not attending to duty.

Ans. Subdivision 15 of section 764 empowers the board of trustees "to appoint and remove such policemen" etc., etc., and any policemen you may have in Oroville hold their appointment under and by virtue of this last mentioned section, according to the provisions of which they can be appointed and removed by the board of trustees only.

Q. The Board of Trustees of the City of Lodi have requested me to ask your advice as to the power of the Board of Trustees of cities of the sixth class to regulate dancing prohibiting such dances as are termed ragging, and to ask you to send a copy of an ordinance regulating same if at hand.

Ans. Replying to your inquiry of July 12th, will say that a Board of Trustees of a city of the 6th class has the power to regulate dancing and prohibit dancing of an immoral or obscene character. Of course, it would be a difficult matter to define "ragging", etc., and there is quite a difference of opinion as to whether certain kinds of dancing are immoral. Enclosed you will find copies of ordinances relating to dancing and the conduct of dance halls, the one from Oakland being the latest.

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What the Cities are Doing

San Rafael has elected a board of freeholders to frame a new charter.

Petaluma is considering the installation of sanitary drinking fountains in the Hill plaza.

Taft has voted \$25,000 for the construction of a sewer system. The vote stood 139 to 17.

St. Helena officials have taken the preliminary steps for more extensions in street paving.

South Pasadena has had its anti-billiard hall ordinance sustained by the Supreme Court of the United States.

Concord is considering the purchase of a chemical fire engine to add to the fire-fighting equipment of the town.

Alhambra will vote on a proposed bond issue including \$31,000 for better fire protection and \$15,000 for bridges and culverts.

Burlingame will soon hold a special election to vote on the proposition of a bond issue of \$150,000 for a municipal water system.

San Mateo had a recall petition circulated recently against three trustees who gave offense by voting for the closing of a certain road.

Rio Vista has recently installed a public drinking fountain as a result of the work of the Woman's Improvement Club of that town.

Martinez is about to go ahead with the construction of a municipal wharf and dredging a canal for which bonds were voted last year.

Riverside citizens are advocating the establishment of a municipal public market. It has been shown that while the lemon growers in that neighborhood receive about half a cent apiece for their lemons the consumer is obliged to pay two cents at the stores.

Visalia has voted bonds to the extent of \$19,000 for the reconstruction of the high school recently destroyed. The election was carried by two votes only.

Covina may have a concrete road before long, running from the city limits to the foothill boulevard, if the plans of the county highway commission are carried out.

Nevada City is to have a new auto chemical fire engine to cost over \$5000. The volunteer fire department has agreed to furnish \$2000 of the sum required.

Riverside officials have quietly secured 160 acres of water bearing land which it is believed is for the purpose of serving as the foundation for a municipal water system.

Coalinga citizens by the magnificent vote of 524 to 1, have decided to secure a Carnegie Library, the same to cost \$20,000 if that amount will be granted by Mr. Carnegie.

Oxnard trustees and other officials were well represented at the convention of the National Municipal League which was held in Los Angeles during the week commencing July 8.

Pasadena has voted \$1,250,000 bonds for a municipal water supply. The election was carried by a vote of 4681 to 457 and was the fourth attempt to vote bonds for this purpose.

Oroville trustees and citizens generally have expressed themselves as being in favor of surrendering their rate-making power over public utilities to the State Railroad Commission.

Venice may soon have a submarine restaurant if the newspapers are to be depended upon. It will have a heavy plate glass roof through which the diners may look through the waves.

Alameda has adopted an ordinance providing that property owners, after due notice, must clean away weeds, refuse and even dilapidated fences from vacant lots and abutting sidewalks or have the same done by the city street department and the expense made a lien on the property. The ordinance also limits the height of fences to six feet.

Hemet will have a special election on August third for the purpose of voting on a proposed bond issue of \$40,000 for a sewer system. The installation of sewers will be followed by street paving.

Fullerton has commenced proceedings in connection with an \$80,000 bond issue for a municipal water system. Attorneys Mason and Locke have been employed to supervise the legal proceedings and sell the bonds.

Willits has ordered a special survey of all its streets preliminary to street paving. Shan & Robson, the engineers employed, have advised the use of a substantial pavement on the main streets in preference to plain macadam.

Santa Ana has failed to sell the \$200,000 bonds recently voted for school buildings on account of alleged defects in the proceedings. The matter was brought to the Court of Appeals where the validity of the proceedings was sustained.

Glendale, according to a municipal census just taken has a population of more than 5500. An ornamental street lighting system is being installed, and this improvement will probably be followed by the erection of a garbage incinerator.

San Bernardino citizens voted down the proposed bond issue of \$230,000 for a polytechnic high school. The bonds lost by 1033 ayes to 1208 noes. Considerable delay was encountered during the election owing to the fact that there was but one polling place.

Marvsville has been discussing an ordinance for further restrictions on saloons. The Woman's Civic Improvement Club may take a hand in framing the new law. The ladies are also taking steps to improve the city's appearance by offering prizes for the best kept back yards.

Colton is going to improve its downtown business district with an asphalt pavement. The work is being done under the improvement act of 1911; and will cost about \$40,000.00.

A contract will be let on the 19th of July for about twelve hundred feet of sewer extensions.

San Leandro will have a special election on July twenty ninth over two ordinances submitted under the initiative. One ordinance increases the saloon licenses from \$75.00 to \$150.00 per quarter, and the other requires transparent windows of not less than a specified size on the front of all saloons.

Venice has had a bond issue turned down because of the accidental substitution of the figure "3" instead of "4" in the notice advertising the sale of bonds. It is hinted that the bond brokers want to back out of their bargain and that this is the real reason for setting up the illegality.

Ventura citizens to the number of 500 recently, presented an initiative ordinance on the saloon question to the board of trustees, which body disregarded the same. The matter is now before the District Court of Appeals at Los Angeles on petition for a writ of mandate. There are three attorneys on each side.

San Leandro trustees recently refused to try an election contest on the ground that the contest was not filed within thirty days after the vote was canvassed. The contestant sued for a writ of mandate to compel a recount and the writ was granted by the Superior Court resulting, however, in no change in the original canvass.

Berkeley officials have started a campaign for a "spotless town." A mass meeting recently being called to discuss the question was attended by representatives from the improvement clubs and other civic organizations and upon motion it was decided to urge the passage of an ordinance similar to the "Wood" ordinance of Pasadena, which makes it impossible for a landowner to let his lot go into weeds and become an eyesore to the neighborhood.

TRADE NOTES

Our readers will observe in the "ad" of the Gorham Engineering Co. a list of the towns using Seagrave Motor Fire Apparatus. Since that list was made up it has been increased by the following sales of Seagrave machines: Riverside 2; San Francisco 1; Orange 1; Pasadena 1 and Honolulu 2.

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

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This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

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Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Automobile Public Service Wagons

American La France Fire Eng. Co., 660 Mission St., S. F.
Gorham Eng. & Fire App. Co., 48 Fremont S. F.
Webb Motor Fire Apparatus Co., 550 Montgomery St., S. F.

Bitulithic Pavement

Warren Brothers Company, Los Angeles, Cal.

Concrete Construction

Esterly Con. Co., Inc., 717 Market St., S. F.

Concrete Mixers

Barber Asphalt Paving Co., S. F. & L. A.
Parrott & Co., San Francisco & Los Angeles

Constructing Engineers

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.
American Engineering Corporation, 57 Post St., S. F.
Stephen E. Kieffer, 1st Natl. Bank, Oakland
Nelson & Piper, 618 Mchts Trust Bldg., L. A.
Roberts & Dennicke, Sheldon Bldg., S. F.
Shipman, Denny & Rhame, Atlas Bldg., S. F.

Culverts

Cal. Corrugated Culvert Co., Los Angeles and W. Berkeley
Standard Corrugated Pipe Co., S. F. & L. A.
U. S. Pipe Co., S. F.

Dump Carts and Wagons

A. L. Young M'chy Co., 26-28 Fremont St., S. F.

Electrical Plants & Machinery

A. L. Young M'chy Co., Fremont St., S. F.

Engines

Dow-Williams Engine Co., Sheldon Bldg., S. F.

Engravers and Bond Printers

A. Carlisle & Co., 251 Bush St., S. F.
Sierra Art Eng. Co., Front & Com. Sts., S. F.

Fire Department Equipment

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Engines

Gorham Eng & Fire App Co., 48 Fremont St S. F.

Fire Hose

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.
Gorham Eng & Fire App Co., 48 Fremont St S. F.
The Gutta Percha & Rubber Mfg. Co., 34 Fremont St., S. F.
Eureka Fire Hose Mfg. Co., 54-58 Fremont St., S. F.
Bowers Rubber Works, San Francisco

Fire and Police Boats

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Pumps

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Gasoline Engines

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Hydrants

Water Works Supply Co., Monadnock Bldg., S. F.

Inspections and Tests

Robt. W. Hunt & Co., 418 Montgomery, S. F.
Smith, Emery & Co., 651 Howard St., S. F.

Municipal Accountant

William Dolge, C. P. A., 311 California St., S. F.

Municipal Castings

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Municipal Engineers

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Roberts & Denicke, 461 Market St., S. F.
Shipman, Denny & Rhame, Atlas Bldg., S. F.
Smith, Emery & Co., 651 Howard St., S. F.

Municipal Printers

A. Carlisle & Co., 251-253 Bush St., S. F.

Municipal Water Works

Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Smith, Emery & Co., 651 Howard St., S. F.

Packings

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Pavement Materials

Barber Asphalt Paving Co., S. F. and L. A.
Warren Brothers Company, Los Angeles, Cal.

Pipes

U. S. Iron Pipe & Foundry Co., 701 Monadnock Bldg., S. F.

Pumping Machinery & Supplies

Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Water Works Supply Co., Monadnock Bldg., S. F.

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Playground Apparatus

A. L. Young Machinery Co., S. F.
Fred Medart Mfg. Co., St. Louis, Mo.

Road Machinery

The Good Roads Mach'y Co., Ft. Wayne, Ind.
A. L. Young M'chy Co., Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Road Oil

Standard Oil Co., S. F.

Roofing

Barber Asphalt Paving Co., S. F. and L. A.

Rubber Goods

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.
Bowers Rubber Works, San Francisco

Sanitation Expert

Harold Farnsworth Gray, Berkeley, Cal.

Scrapers

A. L. Young M'chy Co., Fremont St., S. F.

Septic Tanks

Pacific Flush Tank Co., Chicago.

Sewage Pumps

Geo. E. Dow Pumping Engine Co., S. F. & L. A.

Sewer (Concrete)

Esterly Con. Co., Inc., 717 Market St., S. F.

Sewer Fittings

Pacific Flush Tank Co., Chicago.

Sewer Pipe and Terra Cotta

Gladding, McBean & Co., Crocker Bldg., S. F.
Steiger Terra Cotta Co., Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Sewer Systems

Sloan & Robson, Nevada Bank Bldg., S. F.

Street Sweepers

A. L. Young M'chy Co., Fremont St., S. F.

Suction Hose

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Water Meters

Neptune Meter Co., S. F. & L. A.
Water Works Supply Co., Monadnock Bldg., S. F.

Water Tanks and Towers

Des Moines Bridge & Iron Wks., Monadnock Bldg., S. F.

Water Works Equipment

Water Works Supply Co., Monadnock Bldg., S. F.
Geo. E. Dow Pumping Engine Co., S. F. & L. A.

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Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

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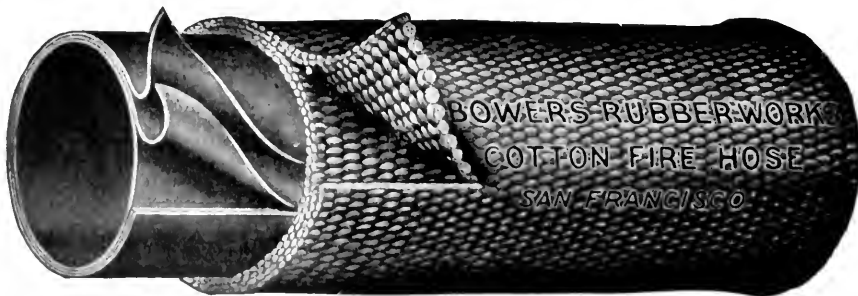
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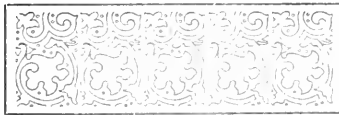
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SEAGRAVE

Fire Department Motor Propelled Machines in Service in California June 5, 1912

Redding	1	Comb. Chem. Engine and Hose Wagon	Riverside	1	Comb. Chem. Engine and Hose Wagon
Napa	1	" " " " " "	San Diego	2	" " " " " "
Ross	1	" " " " " "	San Diego	1	85-foot Aerial Hook and Ladder Truck
Piedmont	1	" " " " " "	Los Angeles	1	65-foot " " " " " "
Berkeley	1	" " " " " "	Los Angeles	1	City Service " " " " " "
Oakland	4	" " " " " "	Los Angeles	3	Chassis for Combination Wagon
Richm'nd	1	" " " " " "	Los Angeles	2	Comb. Chem. Engines and Hose Wagon
Palo Alto	1	" " " " " "	Nat'l City	1	" " " " " "
Hanford	1	" " " " " "	Redlands	1	" " " " " "
Porterville	1	Hose Wagon	Long Beach	1	Tractor for City Service Truck
Pasadena	1	Chemical Engine			

Other Makes Exclusive of Pumping Engines

Chico	1	Comb. Chem. Eng. & Hose Wagon	White
Santa Rosa	1	" " " " " "	Pope-Hartford
Berkeley	1	" " " " " "	Gramm
Santa Barbara	1	" " " " " "	Pope-Hartford
San Bernardino	1	" " " " " "	Pope-Hartford
Venice	1	" " " " " "	Pope-Hartford
Coronado	1	" " " " " "	Knox
Hollywood	1	" " " " " "	Tourist
Monrovia	1	" " " " " "	Tourist
So. Pasadena	1	" " " " " "	Tourist
Pomona	1	" " " " " "	Rambler
Whittier	1	" " " " " "	Rambler
Long Beach	2	" " " " " "	Rambler
San Diego	1	" " " " " "	Rambler
Stockton	1	" " " " " "	Knox
Alhambra	1	" " " " " "	Tourist
Los Angeles	1	" " " " " "	Gramm
Porterville	1	Chemical Engine	Knox
San Francisco	1	" " " " " "	Pope-Hartford
San Francisco	1	" " " " " "	American-LaFrance

NOTE:—This is a complete list according to our records. Any omissions are due to oversight and are not intentional.

We respectfully refer intending purchasers to any of the above-named cities for information, not only about Seagrave machines, but those of other makes as well.

The Seagrave Company build Fire Apparatus **exclusively**.

RECAPITULATION

American-LaFrance	1	White	1
Gramm	2	Knox	3
Tourist	4	Rambler	5
Pope-Hartford	5	SEAGRAVE	28

These tables show that there are more Seagrave apparatus in service than all other makes combined. There is a reason. Merit tells. Ask the city that owns a Seagrave.

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Berkeley, California, September 23 to 28, 1912

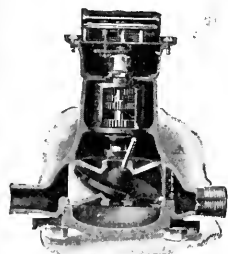
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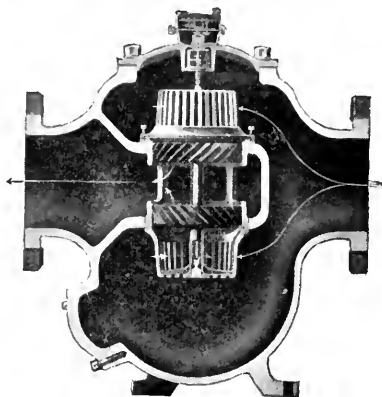
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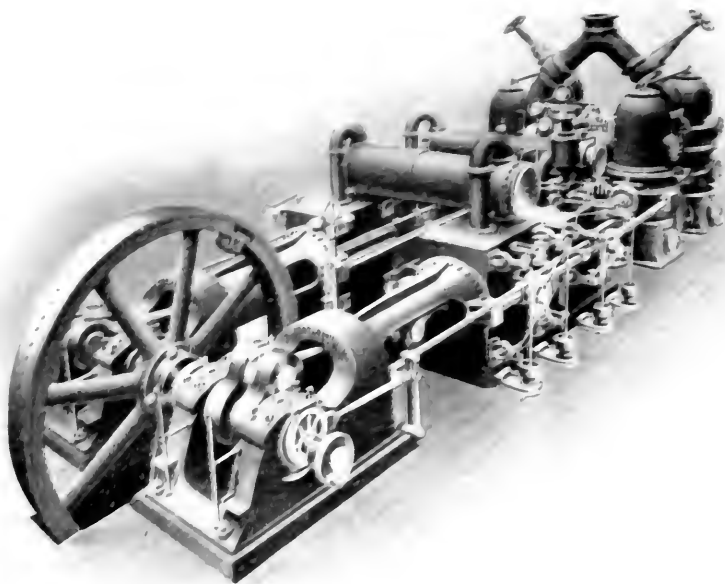
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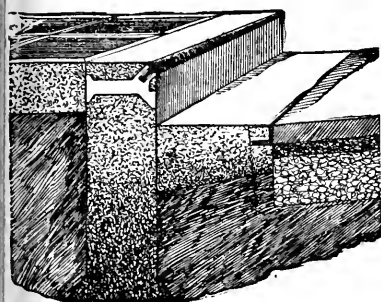
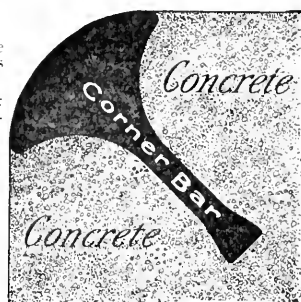
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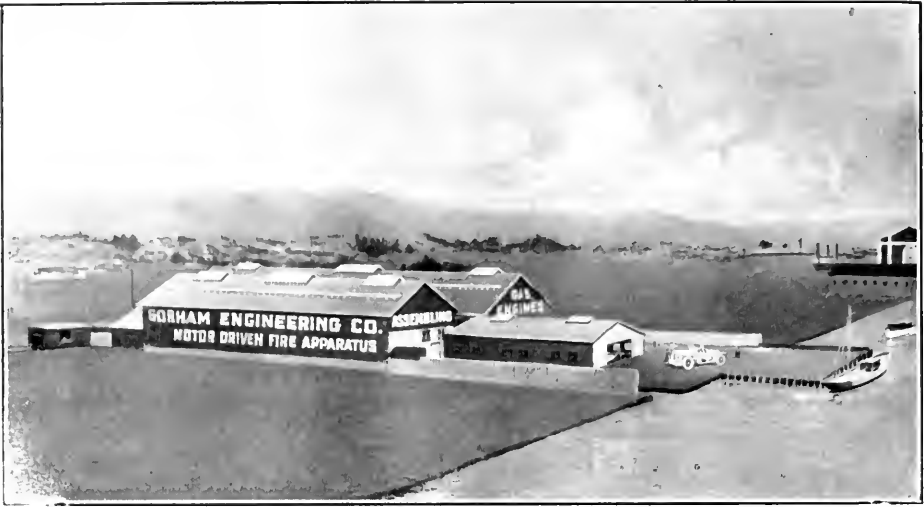
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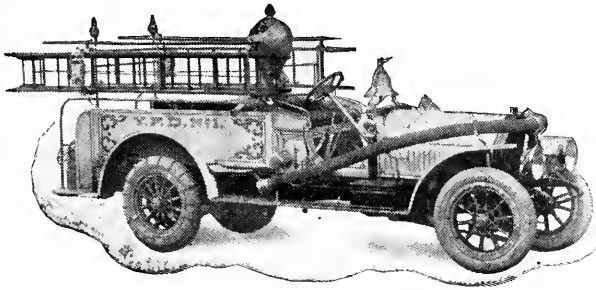
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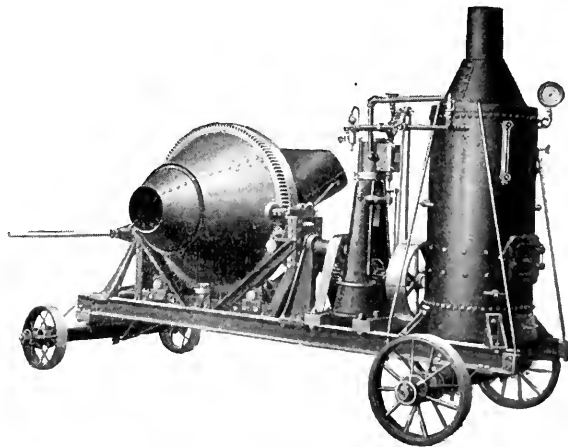
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Organized 1897

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Each city belonging to the League of California Municipalities is entitled to a free copy of this magazine every month for each of its officials; if not received kindly notify the Secretary. **See that your City is in the above list.**

NOTE—Every city official in California reads **Pacific Municipalities**.

Pacific Municipalities

OFFICIAL ORGAN OF THE LEAGUE OF CALIFORNIA MUNICIPALITIES

Entered at Post Office, Santa Clara, Cal., as Second-Class Matter

VOL. XXVI

FOURTEENTH YEAR

No. 8

EDITORS

H. A. MASON AND WM. J. LOCKE

EDITORIAL AND BUSINESS OFFICE NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO

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Published Monthly. Yearly Subscription, \$2.00 in Advance. Single Copies, 25 Cents

OPEN LETTER NO. 3

The National Weeklies and Monthlies have contained many articles recently telling how newspapers and other periodicals have gone out of existence because of the non-support of advertisers. Fortunately Pacific Municipalities is not entirely dependent on advertisers and can be issued in spite of the fact that there are firms who do not like the magazine and would rather see it die; needless to say they do not patronize it. The League which is back of Pacific Municipalities has grown too popular and powerful, and will always have the means to support an official organ.

Of course, we will not deny the fact that if we get more advertisements we can issue a larger publication, and we will say incidentally that the prospects of enlargement are continually growing brighter.

Many firms and business institutions repeatedly claim that they do not care for municipal work. These are the people who, rather than use our publication and promote their enterprises legitimately, prefer to use defamatory methods whereby they may say things which will not be recorded in print. Others again, will cancel their advertisement the first time they read something which does not meet with their approval. All we have to say to the latter class is that we are glad they stay out if they think that because of their advertisement they are entitled to dictate the policy of our publication. The advertising pages of our magazine are open to any legitimate and responsible firm and we will always be glad to print whatever they have to say, but this does not mean they can influence its editorial pages.

Municipal government is making great progress, particularly in California, and it would certainly pay everybody who has to come in contact with the governing bodies to use our columns for the legitimate purposes mentioned.

It is impossible for all municipal officers to please all their fellow citizens all the time, and it is not only futile but extremely unwise to continually and constantly criticize their acts. It can only hurt the growth and prosperity of a municipality, whose welfare every true citizen should have at heart. Every man, woman and child should boost for their own town. If you find anything that pleases you tell it to everybody, but place the kicks on file or only tell those who can remedy the matter. Do not harm your own dear town, the place where you have to make your home and whose prosperity invariably means your prosperity too.

For the same reasons we ask you to boost Pacific Municipalities and see how we will thereby be enabled to get out a larger and better publication and do more good for the cities and citizens of our dear State of California.

J. F. Selig
Business Manager.

PACIFIC MUNICIPALITIES

A Journal for Progressive Cities

VOL. XXVI

AUGUST 31, 1912

No. 8

**PROGRAM IN PART FOR THE 15TH ANNUAL CONVENTION OF THE
LEAGUE OF CALIFORNIA MUNICIPALITIES, TO BE HELD
AT THE UNIVERSITY OF CALIFORNIA, BERKELEY,
CAL., SEPTEMBER 23rd to 28th INCLUSIVE**

BEFORE THE GENERAL BODY

- "The West as World Beaters in Engineering", illustrated with stereopticon views; by Professor Robert Sibley of the Department of Mechanical Engineering at the University of California.
- "A Comparison of the Methods and Efficiency of Modern European and American City Government"; by Beverly L. Hodghead, former Mayor of Berkeley and Past President of the League of California Municipalities.
- "More Efficiency in the Health Department of Small Cities"; by Dr. Fred Wm. Browning, Chairman of the Committee on Standard Methods of Public Health Administration, of the California State Board of Health.
- "Excess Condemnation"; by Percy V. Long, City Attorney of San Francisco.
- "Progress in Municipal Government"; by Hon. George W. Stone, Mayor of Santa Cruz.
- "Should the California Municipalities surrender their Powers of Rate Fixing to the Railroad Commission?" by Max Thelan, Attorney for and Member of the Railroad Commission of California.
- "Improvements in Public Health Administration in California", by Harold Farnsworth Gray, specialist in fighting the fly and mosquito.
- "The Initiative and Referendum on Ordinances relating to Technical Subjects"; by Dr. L. M. Powers, Health Commissioner of Los Angeles.
- "Municipal Ownership vs. Regulation"; leading speaker not yet selected.
- "Participation in the Panama-Pacific International Exposition"; Report of the Committee appointed at the Santa Barbara Convention.
- "Home Rule in Taxation"; open discussion.
- "Merits of the Preferential System of Voting used in Spokane and Grand Junction, as compared with the Berkeley System"; leading speaker not yet selected.

"The Electrical Fire Hazard"; by C. W. Mitchell, Inspecting Engineer of the Board of Fire Underwriters of the Pacific.

"The Value of Municipal Reference Libraries"; by Charles S. Greene, Librarian of the Oakland Free Library.

"Removal of Weeds from Vacant Lots and Sidewalks"; leading speaker not yet selected.

Besides the foregoing the following gentlemen are expected to take a prominent part in the program:

Professor C. D. Marx of Stanford University, Engineer Hinckley of Redlands, Assistant Engineer Frickstadt of Oakland, Perry Haviland, Engineer of several municipalities, Professor Derleth of the University of California, Engineers Byxbee of Palo Alto, Bayley of Pomona, Polk of Chico, Noyes of Vallejo and Bromfield of San Mateo.

One day will be devoted to the discussion of "Street Work in Small Municipalities". Engineer J. B. Lippincott of Los Angeles has been asked to deliver an address on the progress of the Owens River project, and Engineer Hyde who constructed the tunnel for the Santa Barbara waterworks has been requested to go on the program.

There will be a talk on Imhoff Tanks for sewage disposal, including a report on the working of the tank at Winters, the first built in California. "The Relation of the State Highways to Cities", will also form one of the interesting numbers on the program. "Building Regulations and Sanitation" is another important topic suggested.

The "Employee's Liability Law", "The State Tenement House Law" and "Home Rule in Taxation" will also form interesting subjects.

On Tuesday Evening, September 24th there will be an address on the "Social Evil" by the Hon. Clayton Herrington of the federal government, and Thursday night Professor M. E. Jaffa will deliver a talk on "Pure Food"; it will be illustrated with stereopticon views.

Judge Herrington will handle his subject without gloves.

"College Training of Municipal Experts" will form the subject of an address by Professor Thos. H. Reed of the Department of Political Science at the University of California.

ATTORNEYS' DEPARTMENT

In view of the approaching session of the Legislature, the work of the attorneys will be of particular importance this year. Among the questions selected for their program are "Remedy for Weeds and Rubbish on Vacant Lots and Sidewalks", by Charles N. Kirkbride of San Mateo, participated in by Arthur Redington of Hillsborough and others; "Desirable Amendments to the Initiative, Referendum and Recall", and "Suggested Amendments to the Improvement Act of 1911" will constitute important numbers. The attempt will be made to consider all proposed amendments to our present laws by the presentation and discussion of resolutions.

"The Legitimate Uses of a Public Park" will form a short paper by H. G. Jorgensen, City Attorney of Monterey. City Attorney Con. H. Goldberg of Willits will also have a paper before the department.

DEPARTMENT OF CLERKS, AUDITORS AND ASSESSORS

Many important questions will be taken up in this department. One of these will be the consideration of a "Model Form of Accounting" which will be submitted by the committee appointed at the Santa Barbara Meeting year ago. "A Model Ordinance for the Assessment, Levy and Collection of Taxes" will be taken up and discussed in a joint meeting with the City Attorneys.

"Equitable Assessing" including a discussion of the "Somers System" will be another important question to be considered by this department.

"Simplification of Methods and Processes in Municipal Affairs" will be the title of a paper by Lorin A. Handley, City Clerk of Los Angeles.



OUR EXPOSITION

BY J. F. SELIG, DIRECTOR OF THE EXPOSITION

The Public Welfare Exposition which will be held in connection with the Fifteenth Annual Convention of the League of California Municipalities and the Fourth Annual Conference of County, State and Municipal Health Officials, promises to be one of the best of its kind ever held in the country, and from a practical and educational standpoint will be of great value to all the delegates. City officials will find on exhibition almost everything required in municipal work, and those officials who are now in the market for supplies or machinery are advised to delay their purchases until they have seen the Exposition, as the very latest goods on the market will be shown there.

In addition to the list of exhibitors which were set forth in the July issue, all the leading paving contractors (including the asphalt and oil manufacturers) will be represented, excepting however the cement people who, for some inexplicable cause declined to make an exhibit. Is it possible that they fear the criticism of the engineers present? Undoubtedly they will have plenty of their agents on the ground to talk, but it is an old proverb that "talk is cheap", and consequently it is not liable to receive much consideration. To make an exhibit would cost them a little money, more money apparently than the good will of the delegates is worth. We might remind them incidentally, that there is nothing much on this earth which can be accomplished without money. The League is neither able nor willing to finance the Exposition, as it is not a part of the League's work. As a matter of fact it might interest some of our readers to know that the Exposition feature was started at the express request of some manufacturers and dealers who, having faith in the merit of their goods believed it was the most honorable way they could show them. These men are entitled to the most courteous consideration and we sincerely hope and trust they will derive benefits by participating.

The machinery line will be ably represented, and we want to call your particular attention to the Tomer Road Oiler, which will be exhibited by the A. L. Young Machinery Company. This Road Oiler has just been placed on the market; it is a California product, and all who have seen it work speak of it in terms of the highest praise. Do not fail to see it demonstrated.

Another Road Oiler, the Monarch Pressure Oil Distributer, will be exhibited by George A. Rogers. There is no doubt but what this machine will come up to the standard like everything else put out by the Good Roads Machinery Company, whose Monarch Steam Roller (equipped to burn oil) will also be on exhibition. Mr. Rogers will show some new graders with steering devices, dump wagons and sand spreading wagons, etc.

The West Disinfecting Company will show for the first time on the Pacific Coast a sanitary closet for rural districts; something designed to supersede the old style, unsanitary, ill kept and badly constructed out door privies, which have proven not only an eye sore, but are a menace to health generally and a breeding place for flies and gnats. This sanitary closet, inasmuch as it is placed within the house, is bound to be an object of interest particularly to health officials and sanitary engineers.

They will also exhibit two standardized disinfectants having a phenol co-efficient of 5 to 6, and Wescol with a co-efficient of 15 as proven by the United States Hygienic Laboratory Phenol Co-efficient Method. Also liquid soap dispenser, sanitary tissue towels, Formosal Fumigator and sanitary drinking fountains, etc. In addition to these they will have at least three moving picture films relating to health problems.

The Shredded Wheat Company will have a very interesting exhibit for the Pure Food Show. They will make their products on the grounds; in addition to this they will have some automatic stereopticon views.

A great many of the talks at the Health Officer's Conference will be illustrated with moving pictures procured through the good offices of the State Board of Health. There will also be models in miniature showing dairies in sanitary and unsanitary conditions, model houses showing proper and improper sanitary construction, model farms, etc. There will be shown also some small models regarding squirrel eradication, mosquito control, ventilation, etc. Owing to lack of space we are unable to give a more extended description of the many exhibits which have been secured for this convention.



PRACTICAL TALKS ON MUNICIPAL ACCOUNTING

BY WM. DOLGE, C. P. A.

No. 1—Double-Entry Bookkeeping.

Almost the oldest type of corporation known, if not the oldest, is the municipal corporation, and it should appeal to the citizen and to the official that if small private corporations find

it necessary and advisable to record their business transactions upon a method which includes more than the mere accounting of cash receipts and cash disbursements, that there is much virtue in the application of similar me-

thods to a large corporation, such as a municipality.

Most cities of California are of the fifth and sixth class. An increasing number of these is being organized under individual charter. In some isolated instances charter provisions relative to the accounting of the municipal finances is so specific that the old time method of single entry or memorandum accounting must be observed in order to comply with the letter of the law, but generally the outline here suggested for accounts of cities of the fifth and sixth class will apply to the charter cities. The Municipal Corporation Act contemplates the keeping of records of **cash** receipts and **cash** disbursements by various officials. There is nothing in the act that specifically provides for the maintenance of accounts of revenue to be collected, except as to licenses and taxes. With respect to taxes, the Municipal Corporation Act refers to the Political Code for full instructions as to the manner of assessing, collection and accounting this most important item of the municipal finances. Under the section applying to the Clerk the act provides for an accounting of taxes, but this accounting is merely a settlement of each year's business and refers solely to the fiduciary responsibilities of the officials involved. In other words, the Clerk charges the Tax Collector with the total amount of the tax roll; he credits the Tax Collector with the amount deposited with the Treasurer and with the amount of the delinquent roll. The Clerk then charges the Tax Collector with the delinquent roll plus the penalties and later adds the charges for advertising properties for sale, finally crediting the Tax Collector with the amount deposited with

the Treasurer and the amount of uncollected taxes, plus penalties and charges, i. e. property sold to the city.

This is illustrated concretely by the following example:—

CLERK IN ACCOUNT WITH TAX COLLECTOR		
Item	Debit	Credit
Total Amount of Tax Roll	\$30,000.00	
Am't Deposited with Treasurer		29,000.00
Net Amount Delinquent Roll		1,000.00
	<u>\$30,000.00</u>	<u>\$30,000.00</u>
Net Amount of Delinquent Roll	\$ 1,000.00	
Penalties 10%	100.00	
Amount Deposited with Treasurer		\$ 500.00
Advertising, 10 parcels @ 50c	5.00	
Amount Deposited with Treasurer (proceeds of tax sale)		101.00
Bal. Taxes and Penalties not paid, i. e. Property Sold to City		504.00
	<u>\$ 1,105.00</u>	<u>\$ 1,105.00</u>

This provides for the absolute settlement of the tax collector's financial operations, is subject to verification and upon the final settlement releases the tax collector and his bondsman from any further responsibility with respect to the taxes of the particular year under review. The same general method applies to the accounting of licenses issued and license fees collected and to all other charges and collections made by the city officials. That the accounting of cash receipts is imperatively necessary and that the method outlined by the statute is a practical one will be conceded by the layman as well as by those experienced in municipal accounting matters. But it does not go far enough. It is an accounting purely of the fiduciary responsibilities of the officials, seeking only to charge them with their individual financial responsibilities for monies received and disbursed and to absolve them of those responsibilities in a proper manner, without regard to the financial operations of the municipality as a single business undertaking.

Many city clerks have recognized this deficiency of the statutory require-

ments and it has been interesting to the writer to observe the numerous attempts that have been made in many of the California municipalities to place the accounting upon the double-entry basis. Some of these clerks have had experience as bookkeepers and are so thoroughly familiar with the virtues of the double-entry method that they find it difficult to understand the single-entry method, and being confronted with certain statutory requirements of the Corporation Bill do not see their way clear to the adoption of the double-entry bookkeeping in their accounts. The principal difficulty appears to be the disposition of the excess of receipts over expenditures and the proper accounting of uncollected revenues. It is of course simple enough to keep a cash account or a town cash book in which are entered on one side all the receipts and on the other side all the disbursements and to post these cash receipts and cash disbursements to the credit and the debit of various accounts in the Town Ledger. In order to avoid the theoretical absurdity of **crediting** the fund for the amount deposited therein, (all asset accounts are debit accounts) many clerks have hit upon the expedient of complying with the strict letter of the law, i. e., charging the Treasurer with the amounts deposited with him by designating the accounts upon the ledger as:—

Treasurer—General Fund, Treasurer—Sewer Fund, Treasurer—Street Fund, Treasurer—Bond Fund, Treasurer—Library Fund, and so forth. In other words, instead of debiting the Treasurer, and crediting the funds, they debit the Treasurer in five accounts instead of in one single account, and the five accounts are the

five funds. By this method not only is the Treasurer charged with all the deposits and credited with all withdrawals, but at the same time each of the funds is charged and credited properly. To determine the amount that should be in the treasury at any given time, it is only necessary to consider the five fund accounts together as representing the Treasurer's financial transactions.

(In larger cities or in counties where there are a great many funds it would be advisable to maintain a single account with the Treasurer upon the general ledger and have a subsidiary ledger containing the fund accounts.) This method, however, does not take care of the uncollected revenues nor of the excess receipts over expenditures. In some towns no attempt has been made to account this at all. In other towns the clerk has opened a Profit & Loss account, a manifest misnomer since the excess of receipts over disbursements is not a profit, and uncollected revenues are certainly not profits either. In a few cases the clerks have set up so called Surplus accounts and this designation may be accepted, but it must not be assumed that all such surplus accounts necessarily represent surplus cash on hand. If the books are properly kept such Surplus account will represent the cash surplus plus the amount of uncollected revenue of previous years. Consequently it would be unwise for the legislative body of a city to appropriate moneys in excess of the annual revenues and cash on hand at the beginning of the year, believing that the surplus is available.

It has been pointed out above that while it is possible to place the cash transactions upon a double-entry basis

that this is by no means a complete accounting. It is merely an improvement upon the single-entry method as outlined in the Statutes, but does not consider a municipal corporation as a co-ordinated business undertaking.

In an attempt to insure better financing a constitutional amendment was passed many years ago limiting the expenditures of each year to the revenues of that particular year. So bad were the conditions at that time that subsequent legislatures found it necessary to make exceptions in the cases of a number of municipalities, with respect to liabilities that had been incurred prior to the passage of the amendment in question.

The important point that is so often overlooked is that it is impossible to know the exact amount of the cash receipts of any one year until long after the end of that particular year. The accounting system, in order to be of service as a guide to the administrative and legislative bodies, should reflect the condition of uncollected revenues and of incurred liabilities as truly as it reflects the cash transactions. To that end an estimate of the revenues to be collected in the coming fiscal year and an estimate of the expenditures to be made in that same fiscal year is imperatively necessary. In other words a budget must be constructed. Starting out with a budget, a statement of estimated revenues and of estimated expenditures, which last must be less than the estimated receipts, and hence leave an unappropriated surplus, the accounting can be expressed in the following six journal entries:—

1. DR Budget Revenues CR AP-
proportion & Surplus

Bringing the annual Budget into the
Accounts

2. DR Fund Accounts CR Receipt
Accounts

For all moneys received

3. DR Appropriations CR Credi-
tors Demands Payable

For all demands received

4. DR Creditors Demands Payable
CR Fund Accounts

For all warrants drawn on the
Treasurer

5. DR Creditors Demands Payable
CR Appropriations

For demands reduced, rejected,
allowed only in part, etc.

6. DR Tax Levy 1912—1913 CR
Budget Revenues

DR Licenses Issued CR
Budget Revenues

To correct the budget revenue estimates when the actual amounts have been determined.

A ledger containing the accounts indicated above would enable the drawing off of a trial balance as follows:—
Account

1. Budget Revenues (i. e. estimated revenues for the year)
2. Fund Accounts (i. e. Treasurer)
3. Appropriations (i. e. debit side:—
amounts expended; credit side:—
amounts set aside for various purposes)
4. Creditors (i. e. amounts due on claims, but unpaid)
5. Receipt accounts (i. e. Taxes, Licenses, Fines, Franchise Receipts, Sale of Old Material, etc. etc.)
6. Tax Levy 1912—1913 (i. e. Tax Collector)
7. Licenses issued (i. e. License Collector)
8. Surplus

This trial balance would show in

fund accounts (2) the amounts available in the Treasury for all purposes. It would not show the actual amount of cash in the Treasury, because that is affected by the outstanding warrants. It would show in Account 4, Creditors the amount of unpaid liabilities of the city for which claims or demands have been presented, but for which no warrants had been drawn. It would show in Account 3, Appropriations the unexpended balance of the amounts set aside for all purposes. It would show in Account No. 6, Tax Levy the uncollected taxes and this account would correspond exactly with the statutory requirements with reference to the clerk's account with the tax collector. In Account No. 7, Licenses Issued would be found the accounting of licenses. It would not be possible to produce a complete balance sheet from such a trial balance, because the bonded indebtedness does not appear and because there are no accounts for the assets which are acquired by the city. These assets, which may be termed capital assets, are such as buildings, bridges, sewers, and if it is desired to be scientifically correct even streets and highways. In addition there are assets such as fire department equipment, furniture, street repair equipment and a miscellaneous lot of property which is being constantly acquired and which is of value after it has been put to the use for which it was originally purchased. For example the city might find it necessary to purchase a concrete mixer or a road roller and legitimately pay for this ma-

chinery out of the proceeds of a bond issue for street work. Upon the completion of the street work the concrete mixer or the road roller would probably still be in excellent order, yet there would be no record upon the books of the municipality of this most valuable asset, except to show the expenditure, and disbursement of the money for its acquisition. Resultingly scientific accounting would require accounts to be created which would be designated as "Stores" accounts, to be offset by credits to the accounts originally charged for their purchase. This subject, however, is probably better left to one of the last articles of this series, since it is practically impossible to introduce a balance sheet into the municipal accounts until there is a thorough understanding of the double-entry method based upon the budget. This in turn presupposes the understanding of the construction and the purpose of the budget. The theory of the double-entry method is to concentrate in the office of the clerk or the auditor the accounting of a municipality, and treat all other officials as subsidiary collectors of revenue. The only exception would be in the case of a municipally owned and operated utility whose principal operations should be controlled upon the general ledger of the Clerk, but the current transactions should be maintained in detail, together with cost accounts, upon separate books of the utility. In the next paper we will take up the construction and purpose of the budget.

THE FINANCIAL QUESTIONS OF PUBLIC UTILITY VALUATIONS

Written Expressly for Pacific Municipalities by Clinton S. Burns, M. Am. Soc. Civil Engineers, Consulting Engineer, Kansas City, Mo.

Much has been written concerning the engineering design and details of construction covering every phase of wafer works, electric lighting, telephone systems, and all similar public utilities, but strangely enough, the financial problem, which is the most important of all the elements or factors affecting any engineering undertaking, is but little understood by the engineering profession as a whole, although there are a few notable exceptions to this general statement.

Indeed, the financial questions involved in the organization and development of any large municipal undertaking are of such importance as to perhaps justify the creation of a distinct specialty in the engineering profession properly termed "Financial Engineering". The ordinary engineering report, purporting to give the estimated cost of developing an industrial enterprise, recites with considerable detail, the items comprising the elements that go to make up the physical structure, giving the estimated cost of each item with precision, but seldom if ever is any mention made of the cost of developing the business which the physical structure is designed to create. This statement is not intended as a criticism of the engineer, nor as any reflection upon his reports or estimates, for it is perhaps natural that the engineer should fail to include in his report the cost of developing the business of an industrial enterprise, inasmuch as his duties as

engineer are usually completed and his engagement terminated long prior to the time when the business development may become a realization. Furthermore, the engineer frequently assumes, though often erroneously, that his client being a business man or a corporation, should develop the business end of the project without suggestion or engineering advice. While this may be true to some extent in an industrial enterprise, yet it is seldom true that a municipality has any adequate conception of the business cost or going value of any of its public utilities, and any engineer making preliminary estimates for a municipality should not fail to include the going value cost as a part of this estimate, in order that adequate provision may be made in the voting of bonds or raising of funds to properly finance the project.

It is a notorious fact that engineers have gained the reputation of being poor business men and some of the critics have had the temerity to charge that if an engineer shows any tendency to develop into a good business man, his first move is to quit the engineering business. It may be insisted that this is an unwarranted slander against the profession, but upon serious reflection, perhaps the critics are justified in their opinion, due to the fact that so few engineers have given the proper study to the financial questions involved in the management of engineering projects.

There are two points of view from which to consider the value of a public utility. First, from the Public view point; second, from the standpoint of the owner of the property.

The public commonly considers the value of any property as determined by what it would cost to duplicate it, less proper amount for depreciation.

The owner is likely to consider its value as measured by the past cost of the physical property plus a proper allowance for the value of the developed business.

These apparently conflicting viewpoints have given rise to several different theories as to the proper method of determining the value of a public utility, taking into account the various factors, such as original cost, cost of reproduction new less depreciation,—capitalization of net earnings,—value of stocks and bonds,—and perhaps other factors also.

Many arguments have been advanced in support of each of these theories, but the theory adopted as the most available and practical, and the one that has been given the greatest weight in most Court Decisions, is the cost of duplication new, less depreciation. This method seems to be equitable from the public point of view at least, for if the public is permitted to buy a public utility on the basis of what it would cost to reproduce a similar plant, with proper deduction for depreciation, there seems to be no cause for complaint.

Depreciation properly includes not only the shrinkage in value due to use and age, with the consequential wear and tear incident thereto, but also the losses in value due to obsolescence, the advent of more efficient or cheaper substitutes for machinery, changed re-

quirements of the community served, and errors in design due to original mistakes or to defects caused by the growth of the community, whereby a distribution system may require reinforcement, necessitating the paralleling of certain pipe lines, thus causing a loss of a portion of the original investment.

The intimate relationship between the physical and financial questions involved in any undertaking is perhaps more forcibly brought to the engineer's notice in appraisal and expert valuation work than in any other specialized field of engineering investigations. It is in this field of activity that the Engineer is brought most closely in touch with the problems of political economy, and here it is that the engineer and the economist must join forces and analyze questions in common. It is in the field of expert valuation work that the engineer is impressed with a fundamental truth not often thought of by those in the more common pursuits of life. That fundamental truth is this,—all values exist in the future. No object can have any value because of its past performance, nor even because of its present existence, but on the contrary, every value possessed by any article, either physical or intangible, is predicated upon the expectation that the article will have a future utility. That this statement is true of the commodities of commerce that have a market value is apparent, for although it is admitted that their market value is fixed by the law of supply and demand, yet it is evident that there could be no demand unless some one expected to have use for the commodities; and nothing can be used in the past, therefore all values depend upon the future.

This statement is just as true of a water works system or other public utility for which no market value can be said to exist, as it is of the ordinary articles of commerce.

It is because of a failure to appreciate this fact that many inexperienced engineers fall into error in valuation work, in computing the cost of materials on the basis of present market quotations or past cost, while as a matter of fact, neither the past cost nor the market price of today can have anything to do with the present value of a public utility, such, for instance, as a water works system or an electric lighting plant. For example, it is ridiculous to think that the valuation of a large water works system should be based upon a price of \$25.00 per ton for cast iron pipe simply because it can be purchased at that rate today, while, so far as any one knows, the price may be \$23.00 per ton tomorrow, or \$27.00 per ton the next day. Present market quotations are therefore of service to the expert appraiser only insofar as they may be a guide to the probable future market. It is for this reason that experts who have given sufficient study to this subject and analyzed it carefully are agreed that the average of prices of the recent past market is the best guide to the probable future market, modified as may be required on account of any external cause producing an abnormal market condition, such, for example, as the introduction of an improvement in manufacturing facilities, causing a general downward tendency in market prices; or, on the contrary, the temporary operation of a trust or gentlemen's agreement among factories causing an abnormally high price to prevail for a time.

It is sometimes argued that inas-

much as the public can serve itself by constructing its own plant at the present time, the public is entitled to the benefit of present prices of material as a basis of computing the cost of duplication of its utility, but it must be remembered that to duplicate any structure requires time. Preliminary work must be done,—an organization perfected,—surveys made and plans and specifications must be completed before any of the material can be purchased. It is therefore evident that the prices in vogue at the time of completion of this preliminary work are the only prices that the public can take advantage of, and, as this is necessarily some time in the future, the average prices of the recent past is the best estimate of the prices most likely to prevail at this future date.

The leading engineers in appraisal work are now, with few exceptions, using five year averages as a basis of estimating the value of physical structures, this being considered a fair criterion of the general level that may be expected in the near future.

It may be observed that many of the controversies arising between Public Service Corporations and Municipalities have their origin in a misunderstanding of the financial questions involved in the management of the Company, or else from political aspirations of some ambitious alderman, and either of these situations can frequently be forestalled by a properly conducted publicity campaign, showing the true valuation of the property and correctly presenting the financial relations existing between the company and the people whom it serves.

If a public service company treats its patrons with confidence and fairness, not trying to unduly conceal its

financial operations, and always maintains a high standard of service, there will seldom be any complaint from the public. It is largely because of the policy of secrecy by which many companies guard their financial operations that public distrust is frequently excited to the point of popular clamor for public control, rate regulation, municipal ownership and kindred demands, all of which require that a valuation of the property be made before any proper basis of negotiation can be determined for their adjustment. Able men are devoting time and thought to these problems with the result that many tentative solutions have been suggested, some of which give promise of a closer working relationship between the public and its utility corporations in the future than has existed heretofore. In some cases the public has sought relief from its fancied grief by granting franchises to a hostile company, thereby hoping to secure the benefits of competition. This is obviously an erroneous view and results only in disappointment to the public and perhaps also in financial ruin of one of the competing companies.

Other instances may be cited where the municipality has deliberately constructed a municipal plant to compete with an existing private plant. This is likewise a vicious remedy that fails to give relief, resulting in the ultimate discredit and political death of its advocates, for it is obvious that no ultimate good can be accomplished by having two parallel plants, each trying to serve the same territory, with their consequent waste of vested capital, their duplicated operating expenses and other economic wastes, all of which must be and always are, in the

last analysis, paid by the consumers.

Along the line of latest thought, has been suggested a partnership plan of finance and operation, by which the public service company is assured a minimum reasonable return upon the value of its property, with a division of the profits upon some equitable basis in case there should be a surplus above the agreed minimum return. This suggestion gives promise of fairness and equity when fully developed into a practical working arrangement between the public service company and the public. It appears to combine the idea of public control and rate regulation with that of private management and individual incentive. This plan has received considerable notice in the "Chicago Plan" of Street Railway management. Much real good is accomplished also through the efforts of Public Utility Commissions where empowered with authority and organized systematically. Foremost among the Public Utility Commissions is the State Railway Commission of Wisconsin, to whom all questions of difference between Public Service Corporations and their patrons are referred for arbitration.

Under the Wisconsin law, no municipality is permitted to construct a plant to operate in competition with a privately owned existing plant, and this is as it should be, for no one of sound business judgment can advocate or defend a policy of such flagrant economic waste as the duplicating of an existing investment in a field where the work can be more satisfactorily performed by one plant properly regulated than by competitive effort.

The Public Utilities Act of the State of California, approved by the Governor December 23rd, 1911, and in effect

since March 23rd, 1912, provides for the organization of the Railroad Commission, which shall have general supervision of all questions of rate regulation of public utilities in the State of California. This act provides that no public utility shall establish or maintain any unreasonable difference as to rates, charges, service, facilities, or in any other respect either as between localities or as between classes of service. The Commission shall have the power to determine any question of fact arising under this section. It is provided that the Commission shall have power upon a hearing and upon its own motion or upon complaint, to investigate a single rate, fare, toll, rental, charge, classification, rule, regulation, contract or practice, or any number thereof, or the entire schedule or schedules of rates, fares, tolls, rentals, charges, classifications, rules, regulations, contracts and prac-

tices, or any thereof of any public utility, and to establish new rates, etc., in lieu thereof. The Commission is empowered to employ experts, engineers, statisticians, accountants, inspectors, clerks and employees as necessary to carry out the provisions of this act. It is thus seen that the Railroad Commission may, upon its own motion, investigate rates and determine the values of any public utilities in the State and upon complaint shall also have this power. A public utility also has the right to complain on any of the grounds upon which complaints are allowed to be filed by other parties. This necessarily means that the question of valuation of public utilities is an important field of investigation in California at the present time and the public, as well as the public utility corporations, are vitally interested in this subject.



MALARIA AND MOSQUITO ERADICATION

Written Expressly for Pacific Municipalities by Harold F. Gray,
Specialist on Sanitation, Berkeley, California

It has long been a mystery to the writer why some well-meaning but small-brained enthusiasts have not started "mosquito-swatting" campaigns in this state, offering prizes for the greatest number of adult mosquitos killed between certain dates. The fly "swatter" is abroad in the land, making considerable fuss and noise, but accomplishing little. Perhaps the explanation is that the "swatters" are so busily engaged with the flies that they have no time to give

to the mosquito. If the "swatters" persist in their efforts to exterminate the house fly by swatting alone, they will be busy for a very long time to come, and the flies will flourish under the treatment.

In a certain sense, it has been fortunate for anti-mosquito work that the "swatters" have not become active against the mosquitos, and therefore the logical and effective methods of mosquito destruction have not been obscured and placed in the back-

ground. On the other hand, mosquito destruction has not received the attention it deserves, for in the aggregate mosquitos spread more disease, and cause more financial loss, than do house-flies. The transmission of disease by the fly is so simple and direct, owing to the filthy habits of the insect, that even the most ignorant can easily grasp the essential points, and can then be persuaded to attempt its destruction. The spread of disease (malaria in California) by the mosquito, requiring intricate biologic processes, is not nearly so easily understood by the uneducated, and has therefore, until recently, largely met with derision and unbelief.

But the mosquito theorem of the transmission of malaria is no longer a theory. It is a fact, so well demonstrated both by formal proof and circumstantial evidence that about the only persons who now object to it are they who have not even a common school education.

Much has been written on the subject of mosquito destruction and the elimination of malaria, and much remains to be written. It is not necessary to cover in detail at this time the fundamental facts of the transmission of malaria by mosquitos, as this knowledge is now widely distributed in this state. But I shall recapitulate the essential facts briefly, and then consider certain interesting phases of the question in as much detail as the space of this article will permit.

The fundamental facts are: malarial fever (chills and fever, or ague) is caused by a minute animal parasite which has its habitat in the blood, attacking and breaking down the red blood corpuscles; these parasites are transmitted from man to man only by

the bite of certain Anopheline mosquitos; the process of infection occurs by the Anopheline mosquito biting a person afflicted with malaria, the parasites then developing and multiplying in the body of the mosquito for a period of about ten days, at the end of which time the mosquito, in biting another person, injects the new generation of parasites with its saliva into the blood, the parasites then attacking the red corpuscles, increasing in numbers, and when finally sufficiently numerous causing malaria in the new victim; thus the parasites pass alternately from man to certain mosquitos, and from these mosquitos back to man again; the parasites of malaria have never been found in air, water, soil or decaying vegetation in malarial regions, and all attempts to produce the disease with these materials have always failed; wherever persons living in malarial districts have protected themselves absolutely against mosquito bites, though taking no other precautions, they have not contracted malaria; wherever, in previously malarial districts, the mosquitos have been destroyed, either by drainage, or oiling, or both, malaria has been reduced in prevalence, and in some cases, where mosquito destruction has been effectively carried out under favorable conditions and for a number of years, has completely disappeared.

Starting from these fundamental and proved facts, and making estimates according to the mathematical laws of chance, Major Ronald Ross (the English army surgeon who about fourteen years ago discovered the role of the mosquito in the transmission of malaria) has made some interesting deductions as to the effect of various factors upon the prevalence of malaria

in a community. Briefly stated, his more important deductions are as follows:

(1) Whatever the original number of cases in a community, if all conditions remain the same, the proportion of malaria-infected persons will tend to settle down to a fixed percentage of the population.

(2) If the average number of Anopheline mosquitos per person is sufficiently low (say less than forty per person) malaria will decrease and eventually die out.

The conclusions are arrived at by means of some rather intricate mathematical formulae, but the reasoning is perfectly clear and logical. The number forty (40) (the maximum number of Anopheline mosquitos per person for which the malaria index, or proportion of persons sick with malaria, will tend to become zero) is open to question, and will undoubtedly vary according to the conditions in different localities. But it is certain that whatever the conditions, this number will tend to be a fixed quantity, other conditions remaining the same, and that moreover it will be a comparatively large number, say not less than fifteen or twenty. In other words, we may still have a few Anopheline mosquitos present in a community, and yet have no constant malaria, for the simple reason that the mosquitos must be sufficiently numerous in order to keep an appreciable number of persons in the community constantly ill with the disease.

This, then, is the reason why mosquito destruction is, and has been, so potent a factor in the elimination of malaria. It is not absolutely necessary to exterminate the whole Anopheles tribe, to rid ourselves of this

scourge. In fact, complete mosquito extermination would in the majority of places be an almost hopeless task. But we can, at a reasonable expense, reduce the numbers of the insects to a relatively small number as compared with the number of persons, and get results practically as good, and as quickly, as if every one of the pests was annihilated.

The fundamental principle of mosquito destruction is the elimination of their breeding places, namely, water stagnant or only very slightly in motion. This is easily possible in cities and towns, but more difficult in the rural districts, particularly irrigated lands and low or marshy country. In urban districts all breeding places can be located by careful search, and either abolished or treated regularly with oil during the breeding season. If the breeding places are few, the mosquitos must be few, and can easily be made so few in number that they will cease to be a nuisance or transmit malaria to any appreciable extent. It is my firm conviction, based on several years careful study and experience with conditions in the malarial districts of this state, that mosquito eradication, or as it is better termed, mosquito control, must be the foundation of all endeavors to do away with malaria in California.

But we need not rely on mosquito control, as a community effort, alone. Obviously, if a person be not bitten by an infected Anopheline mosquito, he will not contract malaria. Therefore personal prophylaxis, or personal preventative measures, should by no means be neglected in a malarial region, even while the work against the mosquitos is being prosecuted. The writer has lived for months at a time

in several of the highly malarial regions of this state, and by taking certain simple precautions, has never experienced an attack of malaria.

Every campaign against malaria should include education of the citizens as to the advisability and effectiveness of the personal preventative measures. Protect yourself absolutely against being bitten while asleep, either by sleeping in a room carefully and effectively screened, or else use a bed-net of mosquito netting which must be carefully adjusted each night so that entrance for mosquitos is impossible. This one simple precaution, if used alone, will serve to prevent at least one-third of the malaria cases. It is an especially urgent matter that all persons affected with malaria should sleep in a properly screened room, or under effective bed-nets, so that the Anopheline mosquitos, if about, will not derive from them the parasites of the disease which they may later transmit to a new victim. This should be compelled by ordinance, and both patient and attending physician made responsible for its enforcement.

The use of screened porches in malarial districts, is to be urged, as we should endeavor to keep from being bitten at all times. If, however, in spite of all precautions, a person is bitten, the expected attack of malaria can be warded off by the use of a moderate amount of quinine under the direction of a physician. Quinine is largely used in Italy as a preventative measure, being distributed free by the government, but I am personally of the opinion that constant drugging is inadvisable, and that in California mosquito destruction and personal prophylaxis are far superior.

These are the simplest and most ef-

fective methods, stated in the order of their value, for the prevention of malaria. By the application of these principles, malaria has been greatly reduced in some of the most malarial regions of the world. Let me quote a few statistics.

At Panama, the number of deaths from malaria has been reduced from 909 in 1899, to 19 in 1908, and even less since the latter date, and the monthly admission rate to the hospitals has been reduced from 6.83 per cent of the working force in 1906, to 1.55 per cent in 1910. At Athens, in Greece, the percentage of school children afflicted with malaria has been reduced from 81 per cent, the average for the five years 1901 to 1905 inclusive (in two years nine out of every ten children were sick), to less than one per cent (0.7%) in 1909. At Ismailia, on the Suez Canal, the number of cases of malaria has been reduced from 2,284 in 1900, to nothing since 1906. Malaria is now unknown there.

These are just a few instances of foreign work, in regions intensely malarial. In California work has not progressed far enough as yet to show any actual stamping out of malaria, but in several communities malaria has been materially reduced by one or more seasons work, in spite of the fact that sufficient funds for thorough work have not been available, except in one instance, an irrigation project in the northern Sacramento valley. Anti-mosquito work was commenced here under my direction last October, and has been continued without interruption. To date no new cases of malaria have developed, although there have been a number of relapses of previously infected persons. Mosquitos have been conspicuous by their absence, a few

Culicines being observed at times when blown in from outside districts by certain winds, but no Anophelines (the malaria transmitters) have been found recently.

In connection with this work, it is gratifying to note, as a step in the right direction, that the Board of Supervisors of the county in which are the lands of this irrigation project, has passed an anti-mosquito ordinance prepared for them by the writer, and designed especially for the abatement of Anopheline mosquito breeding places. At the present time no provision for the enforcement of the ordinance has been made, but it is hoped that this will be attended to in the near future. It may be stated parenthetically that the particular county in question had, in 1909, three and six-tenths per cent of all the malaria deaths of the state. The economic loss to the county from malaria, on the basis of the State Board of Health statistics, is certainly not less than \$101,520 per annum. The cost of proper enforcement of the ordinance should not exceed \$4,000 per annum for a period of five years, and should show, estimating a forty per cent reduction of malaria in the first year, sixty per cent in the second, seventy-five per cent in the third, eighty-five per cent in the fourth, and ninety per cent in the fifth and succeeding years, a net saving to the county of not less than \$335,300 in the five years. At the end of five years malaria should be virtually stamped out (90% reduction), and the cost of the enforcement of the ordinance would thereafter be nominal, say not more than \$500 per annum.

These figures apply largely to rural conditions. I have recently made a similar estimate, based on facts ascer-

tained in greater detail and accuracy, for a city in an adjoining county. Here it was conclusively shown that the economic loss from malaria was not less than \$75,000 in 1911. The disease could here be practically stamped out in three years, at a cost of about \$2,000 per annum, and would show, estimating a sixty per cent reduction of malaria in the first year, eighty-five per cent in the second, and ninety-five per cent in the third and subsequent years, a net saving to the community of not less than \$173,900 in the three year period.

The figures I have given are not exceptionally high, astonishing as they may seem, for they are greatly exceeded in several communities in this state.

At various places in California mosquitos are a very severe pest. In most cases the insects are chiefly of the Culicine variety, and do not transmit malaria, but their destruction is desired simply on account of the annoyance they cause. There are few towns in the interior of this state where one is not assailed on a summer evening by numbers of these pests. The presence of mosquitos (and flies) produces a distinctly unfavorable impression of the town on visitors and more desirable class, and for this reason, as well as comfort, the destruction of all mosquitos is highly advisable. Practically the same measures which will destroy the Anophelines will destroy the Culicines, although there are some differences of habit which must be considered.

There is one variety of Culicine mosquito, the salt-marsh mosquito, which abounds around San Francisco bay, and at times of favorable winds is carried miles from the marshes

where it was bred, and become a perfect torment to some places. Special methods of treatment are required for these pests, but their consideration is beyond the limits of this article.

It is my sincere hope that in the brief space of this article I have been

able to present certain phases of malaria and mosquito control in such a manner that city and country officials in malarial regions will at least consider the subject carefully, and guided by competent advice, make an earnest communities of this scourge.

THE HANGING GARDENS OF MINNEAPOLIS

BY W. J. LOCKE

They say there is nothing new under the sun, but we have our doubts about it. A new application of an old idea may be properly regarded in some respects as being a new thing.

Minneapolis has been looked upon by many as a city of continuous cold weather. This is not true and the reputation is objectionable and harmful. For notwithstanding the fact that it gets quite cold in winter, Minneapolis enjoys long periods of sunshine and pleasant weather. In order to dispel this erroneous idea existing in the minds of outsiders, a number of its citizens were led to devise a unique plan of floral beautification which has resulted in placing Minneapolis in a class by itself.

No arguments can possibly dispel the illusion which is conveyed by the thought that Minneapolis is "The City of Gardens," or more particularly "The City of Hanging Gardens". Its people have taken advantage of the unconscious influence that flowers and foliage have on the human mind; it is well illustrated by the impression given on beholding a palm tree, to-wit, that one is in a balmy climate.

There is nothing more pleasing than

beautiful flowers. Therefore, why not have more of them and have them around us all the time? At once ye old time business man raises his hand in protest, declaring that business is cold, prosy and colorless, and that flowers and business are incongruous. That is the old idea to be



There is a warmth and beauty about this decoration that forever dispels the idea that Minneapolis is of the barren north

sure, but is it the right one? Are cold gray walls, without ornamentation, necessarily essential to successful business? We think not. On the contrary, would it not be better for all of us if there were a little more warmth and color in business?

Minneapolis, so far as known, is the first city in America to start a systematic floral beautification of its business buildings. The movement was started late in the spring of 1911 by an organization of citizens known as the



The use of flower boxes is not the only way to add a touch of nature and make an entrance inviting

Garden Club, and although the first year of any new undertaking is always considered as experimental, nevertheless the results were sufficiently successful to cause other American cities to copy the idea and to warrant Minneapolis continuing and improving upon the plan.

Not being prepared in 1911 for the great demand for vines and flowers the local supply was soon exhausted. The price for vines went up 120 per cent. The available supplies in St. Paul, Milwaukee, Chicago, Des Moines, St. Louis, Kansas City and in fact all other cities within a radius of 500 miles were soon exhausted and the growers were unable to fill the orders. In all, something like 15,000 feet of flower boxes were placed in the windows of business property.

The experience of 1911 showed that it is not advisable to establish any uniform plan for watering the hang-

ing gardens, as this should be done only in the mornings or evenings and at the times most convenient to the tenants; and each tenant is expected to take an interest in his own garden. As the movement stands for an idea, an expression of citizens who are proud of their city, the Garden Club makes no attempt to limit that expression except in the suggestion that the entire business district be thriving with plant life during the summer. The use of window boxes is not the only method used, however. Bay trees or urns are placed at the entrances of buildings with wonderfully beautiful effect. The ingenuity of the citizens and the florist develop many unique ideas.

Probably the greatest effect of the hanging gardens is the influence they seem to have upon one's trade, and one's employees, and they are now regarded as a business asset. Within the past decade the managers of large



A great addition to the architectural beauty of an otherwise plain building

industrial works have learned that flowers and pleasant surroundings increase the efficiency of their employees and have the effect of creating a better spirit among them; progressive manufacturers have found they could

get more and better work from their employees when the windows of the work rooms were filled with flowers. The same effect is noticeable on the customers of an establishment, who seem to take pleasure in doing busi-



A permanent feature of the busiest business district in Minneapolis

ness in a place not only up-to-date but which is surrounded with the simple beauties of nature. There is no reason why work of any kind should necessarily be associated with everything that is ugly.

The people of Minneapolis are so well pleased with their experiment that they feel no class of business should be exempt, and that it is a mistake to assume that any business can afford to be without this assistance when others have once adopted it. The hanging gardens are an influence both from the inside and the outside. Many tenants whose offices are in high buildings, too high to be seen from the street, are ordering flower boxes for the influence they have upon their clients and their employees. Other cities are copying the plan, but Minneapolis has the distinction of being the first to originate it, and wherever it is spoken of it is known as the "Minneapolis Idea."

For public convenience the Garden Club gives assistance to those interested by quoting the names and address of parties who install flower boxes at reasonable prices. No uniform charge per foot has been established, as each building requires individual treatment; however, as the supply of flowers is always limited, lower prices prevail earlier in the season. By writing or telephoning to any one of the various parties recommended by the club, a representative will call and arrange for installing hanging gardens most suitable to the particular case. These men come only on call, however, and do not solicit. No pressure is brought to bear to urge any one to adopt "The Hanging Gardens," but many of the business men of Minneapolis have already announced that their own place of business will never again be without hanging gardens in the summer.

What an idea for the cities of Cali-



The view from a dentist's window—a valuable business asset

fornia! What an opportunity it presents to us here in this land of sunshine. For one of the first things which strikes the visitor with agreeable surprise is the sight of blooming flowers in mid-winter. Then why not adopt

the "Minneapolis Idea?" Surely it is something worthy of emulation by every city. In our case it suggests an ideal method of giving visible proof of one of our greatest assets, California's glorious climate. Other cities may adopt the "Minneapolis Idea" and many of them will undoubtedly do so, but California is the only place where it may be carried out both winter and summer. Our visitors then would not be compelled to go out to

the parks and residence districts to see winter flowers in bloom; they would be surrounded with them everywhere. Suppose, for instance, that every hotel and business house from basement to garret would be thus adorned with flowers when the great Exposition was opened in 1915, would not these silent testimonials of our glorious climate speak more eloquently and effectively than any tongue or pen?

HINTS ON COMMISSION FORM OF GOVERNMENT

SEATTLE MUNICIPAL NEWS

In a communication to the News, Mr. John Lamb calls attention to certain defects and shortcomings in our city government, with suggestion as to their elimination by the adoption of the commission form.

The problem of government is to find the proper mean between the safety that comes from widely distributed power and the efficiency that comes of concentrated power. If we drift too far in the former direction we invite inefficiency; if too far in the latter direction, despotism.

The defects heretofore developed in city governments in America have been, in the main, due to a distribution of power and responsibility among so many officials that the execution of business was unreasonably obstructed and delayed, producing expense and inefficiency to a degree in many cases that was almost intolerable. There has been much talk about graft and dishonesty, and there have been many flagrant cases of both, but I believe that where the public has lost one dollar through graft in

connection with municipal administration, it has lost ten through inefficiency.

This has not been chiefly due to the natural inefficiency of men in the public service, but to the clumsy and cumbersome methods under which they are compelled to work.

Our own city government is probably as good as the average, but there is ample room for improvement. Our methods are much too complex, dilatory and expensive. Hundreds of thousands of dollars could be saved every year by the simplification of our methods of transacting municipal business.

I shall cite some of the defects and weaknesses of our municipal system. I have here the Seattle Daily Bulletin of March 26, 1912, containing the official printed report of the proceedings of the city council on the previous day, March 25th.

I find in that report that the council acted on twelve special orders, 57 petitions and communications, 28 committee reports and 16 resolutions.

There were 35 ordinances introduced

and 19 ordinances passed. The council, therefore, dealt with 167 different matters at one session. Assuming that the session lasted four hours, they would have on an average of one minute and twenty-six seconds for the consideration of business that came before them.

Now, as a matter of fact, the action of the council in most of these cases was purely formal and perfunctory. They simply took the word of the respective committees and voted as the committee recommended. The council as a whole had no time, even if it had the inclination to examine into the merits of the various matters dealt with; and so most of our government is really by committees of the council instead of by the council as a whole.

Nine-tenths of the matters dealt with by the council could be handled, just as intelligently, just as responsibly, and much more expeditiously by a commission of five men as by any greater number working through committees and the whole machinery of a large council working through committees is a drag net on the execution of business and serves no essential or necessary purpose in the administration of city affairs.

Duplication of Effort

We are overloaded with governmental machinery; top-heavy with officialism, and a large part of what these officials do consists of obstructing, interfering with and duplicating what other officials have already done, or must subsequently do in the course of their regular duties.

I am not blaming individuals because each does what his duty requires him to do. I am pointing out the faults of the system, the very nature of which is to multiply expense and perpetuate inefficiency.

Let me make a brief classification of

the 167 matters dealt with by the council at its session of March 25th:

Under Special Orders there were seven assessment rolls and five resolutions, all with reference to street improvements, none of them matters of general legislation, simply public hearings.

Of the 57 petitions and communications 55 dealt with special matters, properly executive business, not requiring any general legislation. One was an application for a railway franchise, which should be granted or denied by a vote of the people; and only one—the chicken ordinance—was a matter for general legislation.

Of the 28 committee reports none required general legislation. They were all matters for executive action.

Of the 16 resolutions introduced and adopted, only two could be regarded as matters for general legislation—the controversy over telephone consolidation, and the resolution declaring the policy of the City Council in condemnation proceedings. Sixteen out of the eighteen were executive business.

Of the 35 ordinances introduced, four might possibly be regarded as proper subjects for legislation, two should be referred to a vote of the people and 29 would properly be executive work.

Of the 19 ordinances passed seven might be regarded as legislative work and 12 as executive work.

Summarizing, this would give 14 matters out of 167 that might be fairly called subjects for general legislation.

Over 90 per cent of the work done by a City Council could be done by an executive body, or commission, without committees or the elaborate paraphernalia of legislation.

The work could be done quicker. The experience of practically every one of the

150 cities which have adopted the commission form go to show that it could be done cheaper and better.

To show the effect of multiplying machinery I will revert to a recent experience in this city.

Cure More Expensive Than Evil.

Some six years ago irregularities in the Comptroller's office resulted in a shortage of about \$60,000.00. As a result it was thought that a more complete system of checks and balances would save the city from such an experience in the future. Experts were employed and a new system of accounting was introduced at an initial cost of \$30,000.00, about one-half the amount of defalcation. The first year that system went into effect, that is from 1907 to 1908, the expenses of the four principal city offices increased as follows:

Comptroller's and Clerk's office from \$35,568.00 to \$73,540.00, or 106 per cent.

The Treasurer's office from \$51,908.00 to \$80,710.00, or 55 per cent.

The Lighting office from \$20,416.00 to \$36,337.00, or 78 per cent.

The Water office from \$25,458.00 to \$44,564.00, or 75 per cent.

This was the total increase in the four offices of \$101,800.00, in a single year. Doubtless the increase in the lesser offices ran well into five figures.

Now, I am not criticising the men who did these things. I believe they thought they were doing the right thing. I am illustrating by a local and concrete example that the system of checks and balances can be overdone, and that the expense incurred in carrying it out to the last extreme may often be more than the risks incurred in not having it all.

The testimony of nearly every commission governed city is that the best check and balance on the actions of men in public life is to make their offices so

important and conspicuous that they are always in the limelight; so that what they do every day is widely discussed by the public every evening. It has been found that men thus placed and knowing the public eye to be constantly upon them hardly ever act dishonestly or become the servant of any special interest against the welfare of the people.

The testimony is well nigh universal that with the short ballot, with only five men to be elected the characters of candidates are more thoroughly canvassed and understood than where there are a larger number; and the whole responsibility of government being thrown upon the shoulders of five men their actions and utterances become matters of household knowledge all over the city, and if each of them does not bear himself pretty straight he is soon taken care of by the recall.

One thing is certain about the commission form when instituted in conjunction with the recall. Public opinion can not be thwarted or defied. The remedy is directly in the people's hands, and unlike the multitudinous council, each man is thoroughly known to the electorate, for after the first election of five only one is elected each year and the candidates become as conspicuous as though they were running for the office of mayor. There are no intermediaries between the people and their candidates, nor after election, between the people and their executive officers.

Most City Business Is Executive.

I repeat that 90 per cent of city business is executive and not legislative in character, and the average citizen would just as soon have five men do it as to have fifty do it, because five men can do it quicker and cheaper and they can be trusted to do it as well as fifty can so long as they know that a recall is ready

for them if they are not responsive to public sentiment. In fact, commission government with the recall is actual popular government, and that is what people elect officials for—to give the citizens such government as they want, and not merely such government as the official wants.

This does not mean that the government will always be perfect, but it will be just what the people want, and they certainly have the best right to say what they want.

Men are rapidly getting rid of the idea that the mass of men must be governed by a select few. The truth is patent that this system, which has prevailed in the past, has not been successful. The select few invariably have interests or are too frequently influenced by or connected with interests which are not identical with the welfare of the common man; and right at this point government by the few has always fallen down.

Ex-President Eliot of Harvard University gives an interesting account of his visit to Houston, Texas, a commission governed city. He says: "I lately sat two hours with the commission which had been governing Houston for two years, and was just about to encounter another election. Our conversation turned chiefly on the financial results of commission government. The mayor of Houston had driven me over many miles of new streets which the commission government had laid out in the outskirts of Houston, making ready for the building of houses along these streets. There were many miles of these new streets—the roadways well formed and well surfaced, the curbstones set, the sewers and gas pipes put in, the lamp posts set—everything ready. He astonished me very much by telling me that all that

had been done (and it was a very extensive work) out of the receipts of the year,—not by the issue of bonds, but out of the taxes of the year. We passed on that drive four large new brick school houses. I asked how these school houses were paid for. 'Out of the receipts of the year, no bonds issued.' I asked, 'To build those four large brick school houses in one year did you raise the valuation of property?' 'Not at all.' 'Did you raise the tax rate?' 'No, we lowered it a little.' How did you do these things?' 'By getting a dollar's worth of value for every dollar paid out.' "

From a letter by Jerome H. Farbar, Director of Publicity, Chamber of Commerce, Houston, I quote the following:

"In five years under the commission form, the assessed valuation of property in the city of Houston has increased over one-half of which is in building. In from \$37,000,000.00 to \$77,000,000.00, over one-half of which is in building. In these five years the city has increased in population 40 per cent. Miles of pavements and sewers, both sanitary and storm, have been constructed. The progress of Houston under commission government is an inspiration. In two years the government was transformed from one threatened with a receivership to one on a cash basis with a half million to spend annually on improvements."

"We combine in one body the legislative and administrative power of a city government. The legislative part of our work, while important, is very inconsiderable in bulk. Nine-tenths of our work is executive."

The testimony in favor of the commission form is overwhelming. There are a few exceptions but these merely serve to prove the rule. Among the cities which have installed commission rule and have found it eminently successful

ful are Huntington (W. Va.), Des Moines, Kansas City, Dallas, Houston, Cedar Rapids, Leavenworth (Kan), Gloucester (Mass.) and Sioux Falls (S. D.).

A System of Obstruction.

Any man who has tried to get things done, and has wrestled for years with an elaborate system of checks and balances—which is often only another name for expense and inefficiency—will have no trouble in knowing why commission government has been a success.

A gentleman connected with one of the executive departments of this city expressed the situation to me one day by saying that when he wanted to get anything done, every person in the city government with whom he had to deal seemed bent on preventing him from doing it. It was not a system of co-operation. It was a system of obstruction, and the budget soon revealed the fact by climbing skyward. The increased expense of more than \$100,000.00 during the first year was not merely a burden for one year, but it became a burden for all succeeding years, and we are paying it now just as truly as we paid it in 1908, except that the present council has cut the expenses perhaps as much as it could do, under the existing machinery of administration.

Defects in Present Methods.

I will express in general terms some of the defects in our present methods.

There is too much duplication of duties. Work done in one department should not be duplicated in another.

Most of the executive work passes through too many hands. First, through the council; then through the department heads; and then through subordinates. This creates needless officialism and ob-

structs and delays business. It prevents any one man from having a full knowledge of the matters he is dealing with. He knows only a part of each transaction with which he is concerned, and cannot use his judgment and experience effectively. Individual capability is not encouraged, but restricted, and suppressed. No one man has authority or freedom of initiative enough to use his intelligence, if he has any, and the whole mechanism of administration becomes dead and stagnant. The system is rigid, and all any man can do is to adopt some minor details so that they will work more smoothly with the system. No important change for the better is possible.

Any man who will take the trouble to look over the list of resolutions, petitions and ordinances which are dealt with at each council meeting will see that nine-tenths of them could be quickly and intelligently disposed of by an executive order of a board of commission. In fact, commission governed cities have all discovered that a large council is not a necessary instrumentality in city government, and that the work of such a body may often be more obstructive than helpful, even when the members are trying to accomplish good.

A concrete instance of the way our system used to work under the extremely rigid construction of the rules that formerly obtained will serve to illustrate.

For about a year after the new system went into effect any expense not specifically provided for in the estimate (made six weeks in advance) would not be allowed except by a special ordinance. Now, in the case of a calamity like the Cedar River washout, this provision would have caused no trouble, for the council would have met and made the necessary appropriation; but where the matter was too small to justify a coun-

cil meeting we had some interesting experiences.

For example bids were once called for and a contract let for 1,000 feet of 42-inch steel pipe to be installed on Harvard Avenue North. The exact amount needed to buy the pipe and rivets had been appropriated. They had been shipped here from the East and delivered beside the ditch which had been dug to receive them. An appropriation was then made to pay the exact cost of doing the riveting and laying the pipe in the ditch, and no more money was available. But, alas! The rivets that had been sent here from the East proved to be useless and new rivets must be gotten in this city if the work was to proceed. These new rivets would cost \$15.00. In the meantime the rains were falling, the ditch was caving in, and the contractors were on the ground ready to do their work. I drew a requisition for the rivets, knowing the case to be an emergency, but could not get an order through the Comptroller's office, as there was no money. For four days I applied each day for an order, explaining the circumstances, but no order came. I was told that no rivets could be had until the next council meeting, a week ahead. That meant at least ten days before the money would be available and the ditch might be washed full of dirt. I finally told the clerk that the rules were idiotic from a business standpoint and a few days later, contrary to the rules, we got the rivets.

The modern city is essentially and em-

phatically a business corporation, and every public utility which the city owns and operates makes it more and more necessary that prompt and vigorous action characterize all its affairs. This prompt and vigorous action is absolutely impossible under an elaborate system of checks and balances. In other words, under this latter system you multiply expense and reduce execution. We may endure this slow-moving and costly process in state and national affairs; but in a city, where every man is within an hour's travel of municipal headquarters, the system is meaningless and inexcusable.

Where the state or national governments touch us at one point, the city administration reaches us at ten. If you want business done, do not put your executive officers in a straight jacket. Give them some freedom of action and initiative. If you want to draw out a capable man's abilities give him a chance to use his abilities. There should be no intermediaries between the people and their executive officers. A council of multitudinous membership is just so much dead weight on your business affairs. So far as the small amount of general legislation required in a city is concerned it could be done better at a single meeting once every three months, and commission governed cities have not found even that necessary. Regard your city as a business corporation; conduct it as a business corporation, and taxes will drop like a plummet.

THE STATE HIGHWAYS

Report of the Committee Appointed at the Santa Barbara Meeting

To the League of California Municipalities, San Francisco, Cal.

Gentlemen:

We, your committee appointed at

the Santa Barbara Convention for the purpose of watching the progress of the work of the State Highway Commission and reporting our findings to

your body, beg to submit the following brief report of the progress up to the present time:

Problem Before the Commission.

The language of the Highways Act recites: "The route or routes of said State Highways shall be selected by the Department of Engineering, and said route shall be so selected and said highways so laid out and constructed or acquired as to constitute a continuous and connected State Highway system running north and south through the state, traversing the Sacramento and San Joaquin Valleys and along the Pacific Coast by the most direct and practicable routes, connecting the county seats of the several counties through which it passes and joining the centers of population, together with such branch roads as may be necessary to connect therewith the several county seats lying east and west of such State Highway." A study of this paragraph will indicate to every one that this phase of the work is by no means easy of fulfillment by the Commission, particularly when the various community factions in practically every county will make every effort to induce the Commission to favor their own particular interests.

We have nothing but the highest commendation for the Commission's choice of main routes covering a total mileage of approximately 2,300 miles, which added to about 400 miles of lateral highways extending out to more or less isolated county seats, will bring the grand total in the neighborhood of 2,700 miles. If the \$18,000,000 was to be spread equally over the entire 2,700 miles the cost per mile, including engineering, overhead charges, etc., would be restricted to

\$6,667.00 per mile. Every one conversant, even in a small degree with road building, will appreciate the fact that good roads of standard designs cannot be constructed for that amount of money, and will, therefore, realize at least one of the difficulties confronting the Highway Commission in carrying out the spirit of the Act itself.

Up to the present time the energy of the Commission has been devoted mainly to surveys, determination of routes and the adoption of specifications for about 100 miles of highway.

We find that the survey work has been done in a very careful and efficient manner combining the final survey along with the preliminary work, thus reducing to a minimum the expenses of engineering work.

As to the quality of roads in general, we will quote from the address of Mr. Austin B. Fletcher, Highway Engineer, read at the meeting of the Pacific Highway Association in San Francisco, August 5th, 1912. "In brief the standard road which the Commission proposes to build will have the following principal characteristics:

1. A right of way not less than 60 feet in width where it is reasonably possible, and as direct between objective points as is consistently possible.
2. Gradients not exceeding 7 per cent, even in the mountainous parts of the State.
3. Curves as open as possible, and in no case of less than 50 feet in radius.
4. As many culverts of sufficient capacity as are needed to take care of surface and underground water.
5. A traveled way under ordinary conditions not less than 21 feet in width, and in the mountains not less

than 16 feet wide, with the center paved or surfaced so as to be hard and smooth under all climatic conditions at all times of the year, the width of the surfacing to be in general 15 feet.

- c. Smoothly graded roadsides, reserved for future tree planting.

For the main roads of the system the choice for surfacing seems to lie between the so-called oil-macadam type and a concrete road with a bituminous surface, the latter being considerably more expensive than the former, but much more desirable as concerns quality and permanency. It is evident that neither type can be adopted for general use unless the cost of the materials and the freight charges for transporting them are reduced to the lowest point possible.

It seems apparent that not less than 2,700 miles of the State Highway must be built to comply with the provisions of the "State Highway Act." Of this mileage it is possible that one-third, or 900 miles, will be in the mountains, and will require no surfacing other than local gravel, and that 1,800 miles will have to be surfaced with materials more or less expensive."

"On all the roads now advertised and awaiting contract, it is proposed to use a hydraulic cement concrete base 15 feet wide, covered with a thin surface of bituminous mixture.

Whether or not much additional work of this character may be done depends largely upon the cement manufacturers.

It is probable that they will make some reduction in the cement price to induce the Commission to adopt the concrete base for its standard type of construction. Whether the reduction

in price will be sufficient to permit of so general a use of concrete is not yet determined.

The sheet asphalt now in course of construction in San Mateo County consists of a 5-inch cement concrete base overlaid with a one-inch thickness of sheet asphalt wearing surface. The specifications for the roads now awaiting the awarding of contracts call for a four-inch cement concrete base overlaid with a three-eighths inch thickness of asphalt "mastic," the asphalt "mastic" to be composed of between 40 per cent to 60 per cent of asphaltic cement, and the balance of filler.

It can be inferred from the above quotations that the desire and aim of the Commission appears to be to distribute the money value in terms of first cost as equally as possible among all the districts affected and thereby sacrifice, in our estimation, permanency and durability of the pavements.

We would submit that it is our opinion that a better plan of procedure, and one which would also fulfill the requirements of the act, would be that where pavements are constructed at all they be constructed of a character which is known to be the most durable, permanent and practicable under local conditions: this, of course, would mean that a smaller percentage of paved roads and a greater proportion of graded roads would be constructed than under the present plans. We feel that whatever work is done should be done with the end in view of securing the best pavement known to highway builders today, thus, reducing to the smallest degree possible the factor of future cost of maintenance, for which, by the way, no specific provision has been

made to our knowledge. We believe that even though some localities would have to be satisfied with an ordinary graded highway, or perhaps an oil surfaced highway under the present bond issue, this would be a far better course to pursue, not only for the reason that the best pavement is none too good; for the further reason that when the bond issue is exhausted the Commissioners could go before the people and claim that whatever work was done had been done according to the best known construction, and that the graded roads would be finished and could be used as subgrades for future pavements if the people would see their way clear to vote an additional bond issue.

There can be no question but that the present bond issue is inadequate to serve all communities with a comparatively permanent pavement, and we believe it far better policy to have good work done as far as can be, than to make an effort to serve all communities by half way measures. Mediocre or experimental pavements of the character specified can only result, in a very few years at the most, in a roadway which will be extremely expensive to maintain, and probably need reconstruction, but will result in serious reflection upon the ability and foresight of the Commission. If our plans would be carried out, all work done would be of permanent character, either in completed pavement, or as a material step towards such a completed pavement, and we further believe that the matter could be placed before the people in such a manner as to prove to them that the expenditures that were to be made were made to the best advantage, and thus gain their confi-

dence to such an extent that they will be glad to provide the means necessary for the continuance of the good work.

Present Specifications.

Of the specifications for the five and four-tenths miles now under course of construction in San Mateo County, we have no criticism to make other than that a one-inch wearing surface seems to be much too thin, and not in accordance with modern paving practice.

In the matter of oil macadam, which, according to Mr. Fletcher's report will be made more or less of a standard throughout the State with the Highway Commission, we wish to say that it does not meet with our approval. This form of pavement is comparatively new and has, in fact, not been in use long enough to give us an opportunity of judging of its permanency or durability. Some of our highway pavements laid with oil macadam three or four years ago have resisted disintegration fairly well; perhaps more of them, however, have shown a considerable degree of disintegration and depreciation. Oil macadam constructed by the penetration method cannot be built with sufficient uniformity to prevent more or less disintegration or a soft spongy surface. If constructed by the mixing method we claim that the additional cost of asphalt over oil would be so immaterial that an asphalt macadam (asphalt concrete) would be far preferable. In thus reporting adversely with reference to oil macadam pavement the very important item of maintenance, which for this pavement will be large, is given consideration.

For this expense, as above men-

tioned, no provision has yet been made, and which must probably fall upon the various counties in which such pavements lie.

As a commentary on the matter of oil macadam, we would call to mind that Los Angeles County alone spent \$3,500,000 on oil macadam highways, and that in the latter part of 1911, when practically all of the bond issue was spent, the Grand Jury of the County met and in a final report stated, as we recall the words, "That the oil macadam roads in Los Angeles County were an absolute failure."

The specifications for work now being advertised include a four-inch cement concrete base (mixed in the proportion of one part of cement, two and one-half parts of sand and five parts of gravel or crushed rock), and a mastic wearing surface of from 40 per cent to 60 per cent of asphaltic cement and the balance of filler. On highway work where water and transportation facilities are not convenient, we claim that a cement base of only four inches in thickness or any other thickness is an impracticable structure; it will be extremely difficult and prohibitive in cost for any contractor to protect the concrete from the sun without covering the same with earth, and it will be even more difficult to keep it wet. We fear that the result will be that the base will crack from the lack of proper moisture and protection, and furthermore we fear that the surface can never be swept or brushed clean enough to enable the asphalt paint coat to be applied in a thoroughly satisfactory manner. Even though boards were used to protect the concrete from the sun, dust will certainly be blown in over the concrete, and thus defeat the proper ap-

plication of the asphaltic paint coat. Furthermore, as regards the wearing surface, we fear that the high percentage of asphaltic cement will either cause the surface to soften and gradually leave the pavement during the hot weather, or, if the penetration is so low that it will not run in hot weather, it will be so stiff as to crack in cold weather, thus allowing water to find its way underneath the wearing surface. The effect then would be that the wearing surface will separate itself from the base and rapidly peel off under the continual wear of heavy traffic, and, of course, it is still an undisputed fact that concrete such as will appear in the specified base will give very little resistance to the effect of general traffic.

We believe that the three-eighths inch of mastic wearing surface will not only be very expensive comparatively, but will be much more unsatisfactory than even a one-inch wearing surface or squeegee coat such as is used as a flush coat to finish an asphalt concrete pavement. The amount of asphalt necessary in the proposed mastic surface is just the same as would be required in a two-inch sheet asphalt wearing surface. This surface specifications has not been tried out satisfactorily and is, therefore, an experiment.

It is our belief that particularly up and down the San Joaquin Valley motor trucks will come into use immediately upon the completion of the highway for the purpose of transporting freight from terminal points, and this factor should be taken into careful consideration before specifications are adopted for such highways. In all other respects, as far as the information has come before us, the

plans of work contemplated by the Commission are very excellent and worthy of recommendation.

Suggested Specifications.

Having in mind the increasingly greater traffic demands which will be made after the completion of the highway, we would suggest three classes of pavement as being much more permanent and satisfactory in every way than those proposed:

1.—A standard pavement consisting of a cement concrete base and a bituminous wearing surface at least two and one-half inches thick, constructed according to best modern practice; this form of pavement has been proven to be successful in all large cities and is considered standard by all municipal engineers;

2.—A pavement consisting of a five-inch cement concrete base, as before, but overlaid with a two and one-half inch thickness of bituminous rock, similar to many pavements in San Francisco and other cities.

3.—A pavement commonly known as asphalt concrete consisting of a base course three inches thick and a wearing surface two inches thick, each course to be separately rolled to complete resistance. This form of pavement has been in use for many years and has proven entirely satisfactory;

A bituminous concrete similar to the asphaltic concrete might be used to advantage along the line of the coast route. For present highway purposes in most localities we con-

sider that the asphalt concrete form of pavement would be in all respects the best pavement to be had under existing circumstances,

In support of our contention that an asphalt concrete pavement can be laid at a comparatively low cost, we would cite that in Sacramento contracts were recently entered into for a five-inch asphalt concrete at the rate of 11 3-4 cents per square foot, including grading; also that in Fresno contracts for a similar five-inch pavement were entered into at the rate of 13 cents per square foot including grading; also that in Madera similar contracts were made at the rate of 14 cents per square foot including grading.

Recommendations.

In conclusion we would remind your body that approximately 70 per cent of the burden of taxation will fall upon the incorporated cities. If poor pavements or experimental pavements are laid between cities, they will be the greatest sufferers would therefore have the best right to be heard in the matter of pavements. In view of the seriousness of adopting improper specifications we would recommend that you give the matter your careful and immediate attention.

Respectfully submitted,

CHRIS. P. JENSEN,

City Engineer of Fresno.

S. J. VAN ORNUM,

City Engineer of Pasadena.

J. J. JESSUP,

City Engineer of Berkeley.



Q When a man feels the necessity of being in two places at the same time he goes to the nearest telephone and sends his voice. It is not exactly the same thing but when a man talks hundreds of miles in opposite directions from the same Bell Telephone, it is about as good. In the daily use of the telephone a man travels all over town by wire in a few minutes. It is just as easy to travel all over the state and other states by means of the universal Long Distance Service of the Bell System.



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QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry. When requested, inquiries will not be published.

Q. We have an employee called the General Utility man, appointed in April, 1910, but not for any certain length of time. Has the Board of Trustees the right to appoint another man to this position at any time, or must the office first be declared vacant?

Ans. Any subordinate officers which the board of trustees in their judgment may deem necessary to appoint shall hold their office during the pleasure of said board, as provided by Sec. 852 of the Municipal Corporation Bill. If it is not the pleasure of the board to retain the appointee of the

old board they may proceed to appoint another man. It is not necessary that they go through any particular form or use any particular language to do this so long as they make their meaning clear, but the best way to do it and the way in which it is generally done is to first pass a resolution removing the old official and declaring the place vacant, and thereupon by another resolution appoint the new man.

Q. In a sixth class town, can the trustees compel the people to pay for the water, one month in advance, there being

no proviso for a rebate in case of a person leaving before their rent is due again.

Ans. Yes, but they might be compelled to refund should a party move away and not use the water for which he had paid, even though there be no provision for a rebate in such cases.

Q. Kindly advise me whether a Library Board, acting as such and deriving their authority from an act entitled "An Act to provide for the Establishment and maintenance of Public Libraries within Municipalities", can lawfully use money obtained from various sources, appropriations included, for the purpose of building a Library?

What would be the proper disposition of the money so accumulated?

Would say that the Board has now accumulated about \$1000 and would like to know whether they can use it for building purposes when they have the amount they wish for that purpose, and in case the Library Board can not legally use the money for that purpose kindly advise what channel the money would have to go

through to accomplish their purpose. Would the City Trustees have to make the provisions?

Ans. The rights of the library trustees with regard to the \$1,000 accumulated depends somewhat upon the circumstances, if it has been set aside in a building fund we see no reason why it cannot be used for that purpose by the Board of Library Trustees. The 5th sub-division of Sec. 5 of the Act you refer to empowers the Board of Library Trustees to purchase property and erect buildings, etc. Should any money be donated to the Board of Library Trustees they may proceed to use it in any manner authorized by law. Should the donation be made to the city, however, (as is invariably the case with all Carnegie donations), the municipality and not the library trustees is the body authorized to erect buildings and make the



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necessary contracts, etc. In reference thereto, see the Hanford case reported in 2 Appellate Decisions, page 761.

Q. A franchise granted by the Board of Trustees to the Western Fuel, Gas and Power Co. doing business in this city, requires that it shall pay to the City Treasurer, 2% of the gross annual receipts. Is this company exempt from this annual payment by reason of the Act of amendment No. 1?

A reply by return mail will be greatly appreciated.

Ans. No.

Q. I would greatly appreciate it if you would give me as soon as you can conveniently do so, your opinion, on any cases that you may know of on the proposition, as to whether a supervisor can repair or aid an incorporated Town in the repairing of one of its streets that is the continuation of one of the principal County roads, and

which was a County road before the Town was incorporated.

I have made an exhaustive search of all the California law on the subject, and the only thing that I can find that has any bearing on the matter is Section 1 of Act 2386 of the General Laws, found at page 900, and which reads as follows; Any incorporated city, town or municipal corporation in this state, is hereby authorized and empowered to permit by ordinance the use of its streets and highways by the board of Supervisors or highway commissioners of the county, for the purpose of constructing and maintaining of any highway or boulevard as part of a state or county system of roads through its incorporate limits, or any portion thereof.

I am satisfied that the Board of Supervisors could legally use the county funds for constructing and maintaining such system of county roads as referred to in the above act, but I am not certain as to whether the county funds could be used

for the maintaining or repairing of the streets running through the incorporation and forming part of the system of county roads, after the Town had incorporated and accepted such portions as came within the corporate limits as streets.

Ans. It is our opinion that by virtue of Act 2386 of the General Laws the supervisors of a county may repair or aid an incorporated town in repairing any of its streets which may form the continuation of a county road or highway.

In volume 37 of the Encyclopedia of Law, page 225, it says "when a municipal corporation is created over territory lying within a county, the power and duty to repair roads therein **depends upon the statutes**, which allow the county officers to improve the state or county road although the improvement embraces part of the highway within the limits of the municipal corporation". It would be necessary to first pass an ordinance reciting the facts and authorizing the use of the particular street or streets for purposes of a county highway.

We are inclined to think that the Act mentioned is sufficient to authorize the use of county funds, as it provides that the Board of Supervisors or Highway Commissioners of a county may obtain the use of the streets for the purpose of constructing and

maintaining thereon any highway", to do which would require funds. Any statute authorizing the supervisors to construct highways would be sufficient to authorize the payment of money therefor, otherwise it would be meaningless.

Q. The Board of Trustees acting as Board of Equalization today run up against a proposition of this kind: A building taxed on the assessment roll for \$3000.00 was destroyed by fire on the night of July 31st and owner puts in a protest and wants taxes removed. Will you kindly enlighten us as to what should be done in the matter?

Ans. "A tax payer is liable for the taxes due on such taxable property as he owned on the day fixed by law for the completion of the assessment." 37 Cyc. of Law 769.

The day fixed by law for the completion of the assessment in cities of the 6th class is the first Monday of August (see Sec. 877 of the Municipal Corporation Bill); therefore the party referred to is liable for taxes on all property he owned on that day, to wit, August 5th, 1912.

The building for which he was assessed was destroyed on July 31st, consequently he did not own it on Aug. 5th. In our opinion the Board of Equalization should strike out the assessment against him for the building.

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Q. May the trustees of a city of the sixth class appoint the clerk to the additional office of street superintendent?

Ans. We are inclined to believe that the courts would uphold the right of the clerk to hold the office of street superintendent in addition to that of clerk.

Several municipalities in the state have appointed one of their trustees as street superintendent and the matter was recently tested in the Superior Court, where the Town of Sierra Madre was a party. Would suggest that you write to C. W. Jones, one of the trustees of Sierra Madre and ask him how the case came out.

The question is quite different in your case however as the clerk is not required to approve his own bills, which would be the case were he a trustee. Therefore there would not be the same objections.

TRADE NOTES

The consulting engineering firm of Burns & McDonnell, with main offices at Kansas City, Missouri, have opened a branch office at Riverside, California, in order to facilitate the handling of their engineering work now in progress at several of the Western States, including a valuation and appraisal of three privately owned water works plants at Riverside, California, together with plans for new municipal improvements.

This firm has specialized in water works matters, having designed something over two hundred municipal plants. They have paid special attention to appraisal work, having appraised something over fifty plants that have changed from private to municipal ownership. The recent activity of the municipalities on the coast to acquire the ownership of the the rates, has made a special demand for the services of this engineering water works plants, or a reduction of firm in appraisal work. Both members of this firm are members of the American Society of Civil Engineers and received their early engineering training in Califor-

nia, having graduated from Stanford University about fifteen years ago, and since that time were fortunate enough to be called in in consultation on valuation of many water works plants, some of these being at Des Moines, Iowa; Council Bluffs, Iowa; Wichita, Kansas; South Bend, Indiana; Green Bay, Wisconsin; as well as many Western cities. Mr. Clinton S. Burns, senior member of the firm, is the author of a number of interesting articles on "Valuation of Public Utilities". Their western work, especially that in California, will be given attention by Mr. Burns from the Riverside office.

WHAT THE CITIES ARE DOING

Lakeport has gone dry.

Sonora is about to install septic tanks.

Anaheim is about to build a concrete septic tank.

Pasadena is procuring a motor truck for draying purposes.

Dixon has commenced the construction of a Carnegie Library.

Red Bluff recently voted dry and put 19 saloons out of business.

Oroville is about to make some extensions to its water system.

Calexico citizens have advocated the establishment of a municipal ice plant.

Oxnard is calling for bids for the construction of a municipal water plant.

Ferndale is contemplating the construction of about three blocks of macadamizing.

Jackson citizens in mass meeting assembled decide to bond the city for a sewer system.

Hayward trustees have started bond proceedings to secure funds for building a new town hall.

San Leandro fire boys threaten to resign in a body unless provided with better equipment.

Riverside has authorized the purchase of two light auto trucks for the electric light department.

Los Gatos citizens are advocating a bond issue of \$130,000 for sewer and street improvements.

Orange County will call an election for a \$1,250,000 bond issue for good roads.

Berkeley is about to procure a combination police patrol and ambulance wagon.

Sonoma County has commenced the initial steps for a \$1,000,000 bond issue for good roads.

San Leandro recently voted against high license and requiring transparent windows for its saloons.

Orland has completed its municipal water works and sewer system, costing altogether \$50,000.

Hemet has voted \$44,000 for a sewer system. The bonds carried by a vote of 241 ayes to 21 noes.

Berkeley is planning for the establishment of municipal baths in connection with its municipal wharf.

South Pasadena citizens in mass meeting assembled petition for a \$60,000 bond issue for new school buildings.

Alameda has a new organization known as the Adornment League, its express object being to beautify the city.

Healdsburg has adopted an ordinance raising the liquor license and forbidding side entrances and back rooms.

Bishop has commenced proceedings for a \$32,000 bond issue for various improvements, including fire apparatus and additions to the sewer and water systems.

San Jose will add to its fire fighting equipment by the addition of two motor propelled combination chemical engines.

Los Angeles will soon have a campaign waged for municipal baths. The Mayor's secretary is taking the lead in the matter.

Los Angeles will appropriate \$10,000 for the establishment of a municipal employment bureau and a municipal lodging house.

Ventura has installed a new system of street lighting, replacing 26 arc lamps with one hundred and ten 100 Watt lamps of 80 candle power each.

Anaheim trustees have been requested to pave both ends of Los Angeles street in order to make a more favorable impression on the State Highway Commissioners.

Orange will invoke the Vrooman Act for putting down one and a half miles of asphalt pavement. The city engineer has been instructed to prepare plans and specifications.

Merced has commenced proceedings for thirty-nine blocks in the residence district. There was a difference of opinion as to the relative merits of asphalt macadam and asphalt on cement concrete, but a majority of the board decided in favor of the latter pavement.

Alhambra has just voted \$50,000 for a new city hall, \$50,000 for a library, \$31,000 for fire protection, \$17,000 for storm drains, \$15,000 for bridges and \$10,000 for an incinerator.

Marysville has a committee of fifteen citizens who are advocating many reforms, including many municipal improvements. A majority of the committee favor also a new city charter.

Sacramento is planning an extensive sewer system for the new section recently annexed. The task of making the surveys and preparing the plans was an arduous one and required the labor of three surveying crews.

Los Angeles has provided for six new automobiles in the budget; two for the police department, two for the fire department, an auto truck for the park department and a small runabout for the excavation inspector. The council will establish a municipal garage.

San Jose is getting out an official newspaper called the "Municipal Record." It contains the minutes of the city council and a synopsis of the proceedings of the various commissions and boards. It has a subscription price of fifty cents a year, but is sent free to all tax payers.

Hollister is considering the improvement of Fourth street with bitulithic pavement, and the property owners are being canvassed by one of the large paving companies. One of the property owners says that the dust from the present roadway is more expensive than a good pavement.

Healdsburg trustees are planning for the permanent improvement of the streets around the plaza. One of the trustees is quoted as saying: "Ever since I can remember, we have been hauling gravel on the streets in summer and hauling off mud in the winter, and I think we should begin to plan for a permanent covering for the business streets."

Modesto will add a modern combination hose and chemical engine to its fire department. The specifications require the development of 70 horse power with a maximum speed of 60 miles an hour, with a carrying capacity of one 40 gallon chemical tank, 1200 feet of hose, two extension ladders and all the usual appurtenances. A three year guarantee is also required.

Antioch will have a bond election on September 21 on the proposition of improving the municipal water plant by the addition of an automatic electric pump, a residence for the engineer, and the installation of water meters. Another proposition is for the erection of a town hall and jail, with accommodations for the fire department; and another is for a gasoline fire engine, chemical tank, and other fire department equipment.

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

Write for Catalogs. Mention Pacific Municipalities When Writing

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S. F.

Asphalt Machinery

A. L. Young M'chy Co., 26-28 Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Arch. Terra Cotta

Gladding, McBean & Co., Crocker Bldg., S. F.
Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Automobile Public Service Wagons

American La France Fire Eng. Co., 660 Mission St., S. F.
Gorham Eng. & Fire App. Co., 48 Fremont St., S. F.
Webb Motor Fire Apparatus Co., 550 Montgomery St., S. F.

Bitullthic Pavement

Warren Brothers Company, Los Angeles, Cal.

Concrete Construction

Esterly Con. Co., Inc., 717 Market St., S. F.

Concrete Mixers

Barber Asphalt Paving Co., S. F. & L. A.
Parrott & Co., San Francisco & Los Angeles

Constructing Engineers

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.
American Engineering Corporation, 57 Post St., S. F.
Stephen E. Kieffer, 1st Natl. Bank, Oakland
Burns & McDonnell, Riverside, Cal., K. C., Mo.
Roberts & Dennicke, Sheldon Bldg., S. F.
Shipman, Denny & Rhame, Atlas Bldg., S. F.

Culverts

Cal. Corrugated Culvert Co., Los Angeles and W. Berkeley
Standard Corrugated Pipe Co., S. F. & L. A.
U. S. Pipe Co., S. F.

Dump Carts and Wagons

A. L. Young M'chy Co., 26-28 Fremont St., S. F.

Electrical Plants & Machinery

A. L. Young M'chy Co., Fremont St., S. F.

Engines

Dow-Williams Engine Co., Sheldon Bldg., S. F.

Engravers and Bond Printers

A. Carlisle & Co., 251 Bush St., S. F.
Sierra Art Eng. Co., Front & Com. Sts., S. F.

Fire Department Equipment

Gorham Eng. & Fire App. Co., 48 Fremont St., S. F.

Fire Engines

Gorham Eng & Fire App Co., 48 Fremont St., S. F.

Fire Hose

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.
Gorham Eng & Fire App Co., 48 Fremont St., S. F.
The Gutta Percha & Rubber Mfg. Co., 34 Fremont St., S. F.
Eureka Fire Hose Mfg. Co., 54-58 Fremont St., S. F.
Bowers Rubber Works, San Francisco

Fire and Police Boats

Gorham Eng. & Fire App. Co., 48 Fremont St., S. F.

Fire Pumps

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Gasoline Engines

Gorham Eng. & Fire App. Co., 48 Fremont St., S. F.

Hydrants

Water Works Supply Co., Monadnock Bldg., S. F.

Inspections and Tests

Robt. W. Hunt & Co., 418 Montgomery, S. F.
Smith, Emery & Co., 651 Howard St., S. F.

Municipal Accountant

William Dolge, C. P. A., 311 California St., S. F.

Municipal Castings

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Municipal Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.
Roberts & Denicke, 461 Market St., S. F.
Shipman, Denny & Rhame, Atlas Bldg., S. F.
Smith, Emery & Co., 651 Howard St., S. F.

Municipal Printers

A. Carlisle & Co., 251-253 Bush St., S. F.

Municipal Water Works

Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Smith, Emery & Co., 651 Howard St., S. F.

Packings

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Pavement Materials

Barber Asphalt Paving Co., S. F. and L. A.
Warren Brothers Company, Los Angeles, Cal.

Pipes

U. S. Iron Pipe & Foundry Co., 701 Monadnock Bldg., S. F.

Pumping Machinery & Supplies

Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Water Works Supply Co., Monadnock Bldg., S. F.

LIST OF RESPONSIBLE FIRMS—Continued

Playground Apparatus

A. L. Young Machinery Co., S. F.
Fred Medart Mfg. Co., St. Louis, Mo.

Road Machinery

The Good Roads Mach'y Co., Ft. Wayne, Ind.
A. L. Young M'chy Co., Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Road Oil

Standard Oil Co., S. F.

Roofing

Barber Asphalt Paving Co., S. F. and L. A.

Rubber Goods

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.
Bowers Rubber Works, San Francisco

Sanitation Expert

Harold Farnsworth Gray, Berkeley, Cal.

Scrapers

A. L. Young M'chy Co., Fremont St., S. F.

Septic Tanks

Pacific Flush Tank Co., Chicago.

Sewage Pumps

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Sewer (Concrete)

Esterly Con. Co., Inc., 717 Market St., S. F.

Sewer Fittings

Pacific Flush Tank Co., Chicago.

Sewer Pipe and Terra Cotta

Gladding, McBean & Co., Crocker Bldg, S. F.
Steiger Terra Cotta Co., Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Sewer Systems

Sloan & Robson, Nevada Bank Bldg., S. F.

Street Sweepers

A. L. Young M'chy Co., Fremont St., S. F.

Suction Hose

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Water Meters

Neptune Meter Co., S. F. & L. A.
Water Works Supply Co., Monadnock Bldg., S. F.

Water Tanks and Towers

Des Moines Bridge & Iron Wks., Monadnock Bldg., S. F.

Water Works Equipment

Water Works Supply Co., Monadnock Bldg., S. F.

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Wires

John A. Roebling's Sons Co., S. F.
Water Works Supply Co., Monadnock Bldg., S. F.

Valves

Water Works Supply Co., Monadnock Bldg., S. F.

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Sidewalks (Cement)

Esterly Con. Co., Inc., 717 Market St., S. F.
Steel Protected Concrete Co., Phila., Pa.

Street Signs

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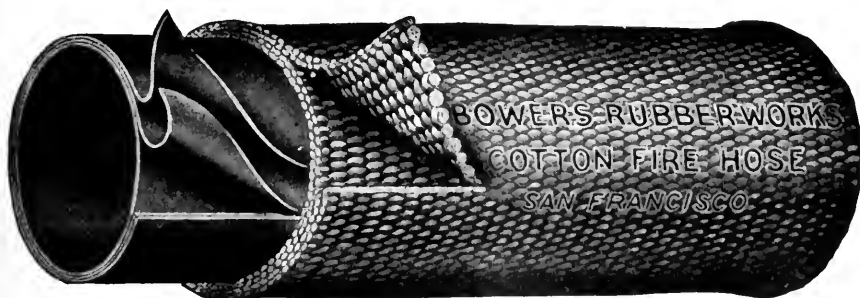
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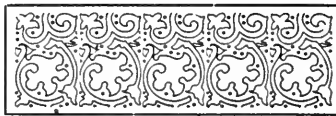
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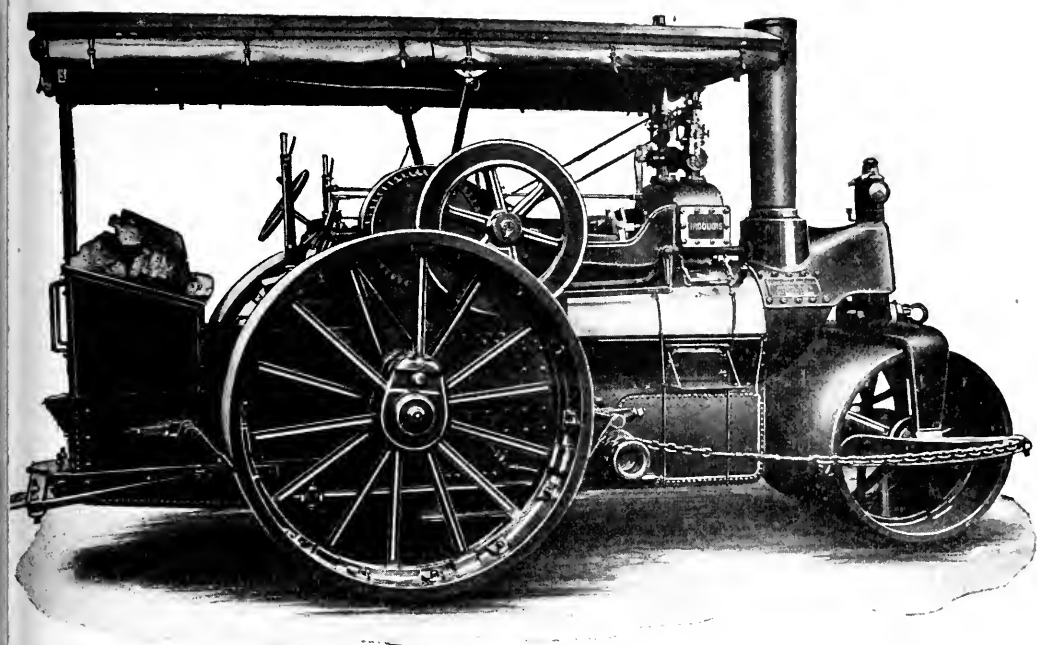
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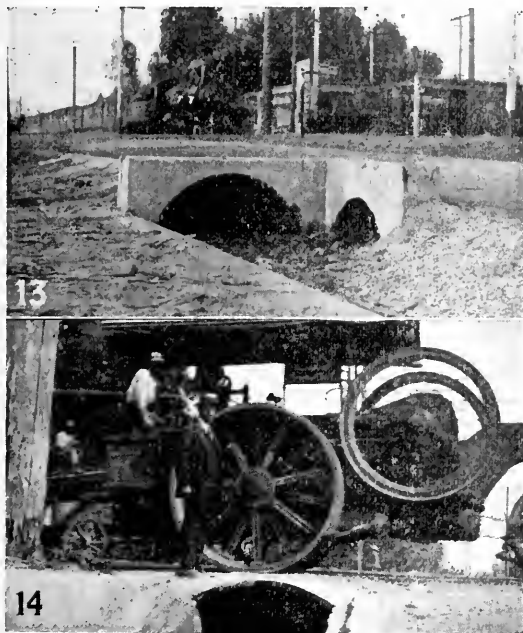
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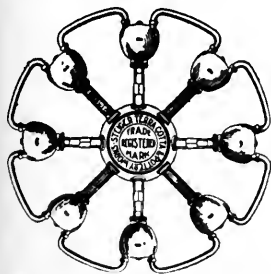
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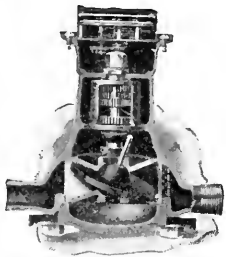
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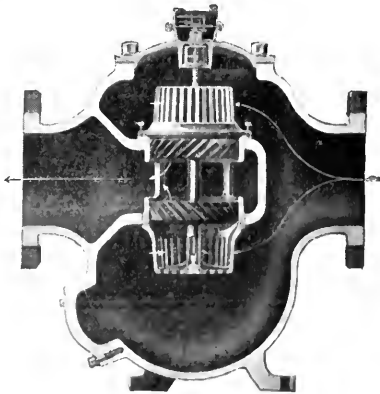
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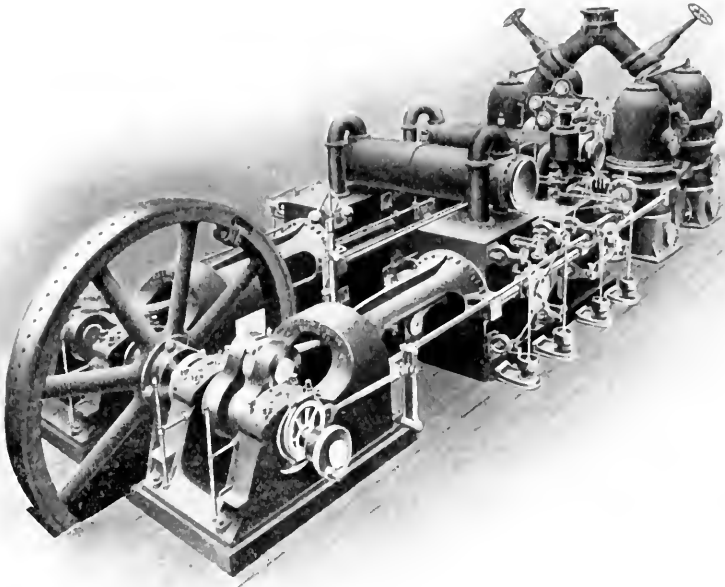
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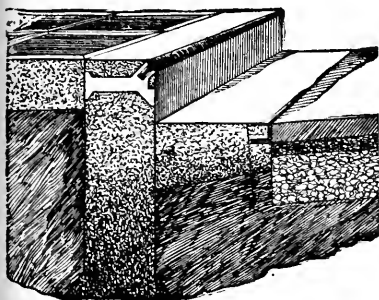
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Architects are invited to read pages 242 and 243 "Sweet's Index."

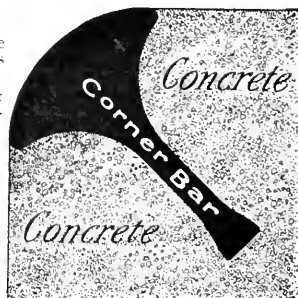
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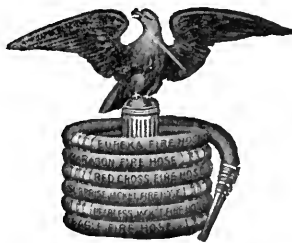
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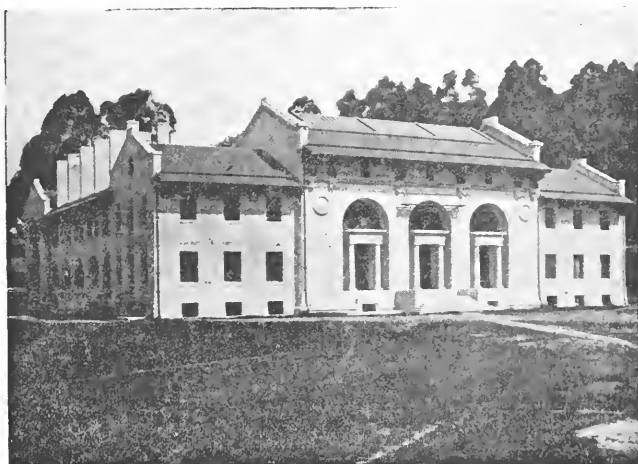
ENGINEERING

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Containing the OFFICIAL PROGRAM
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AND THE PUBLIC WELFARE EXPOSITION

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SEPTEMBER 23 TO 28, 1912

PUBLISHED MONTHLY—Official Organ of the League of California Municipalities

VOL. XXVI

PUBLICATION OFFICE, SANTA CLARA

NO. 9

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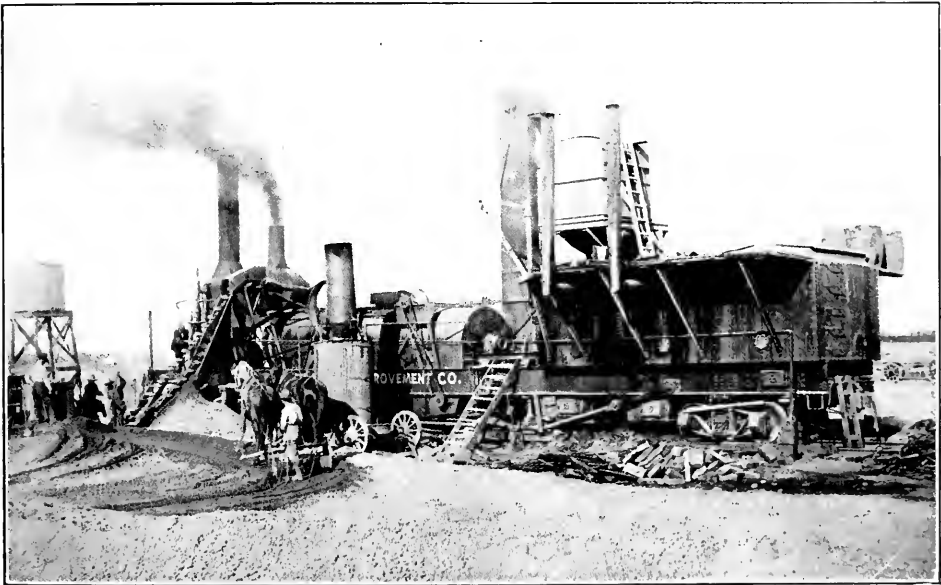
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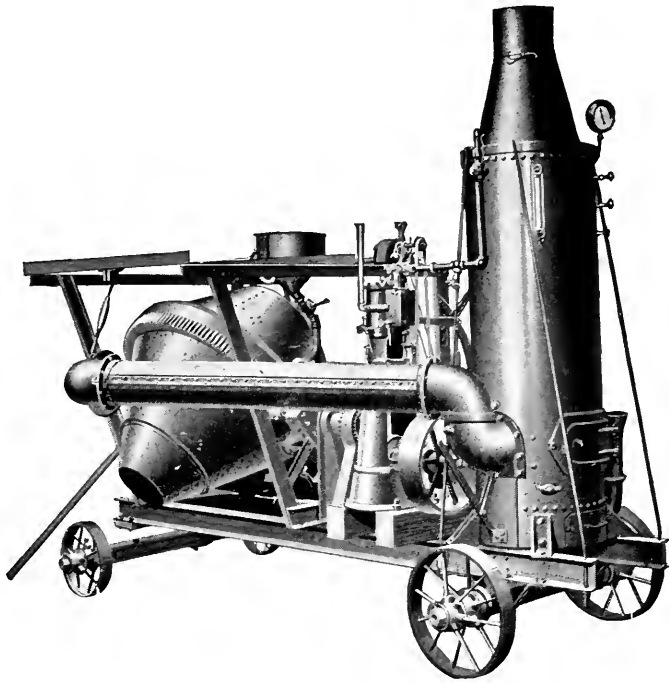
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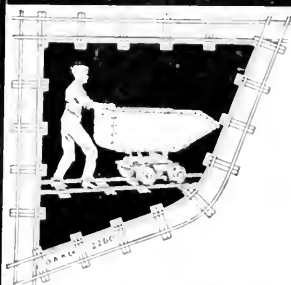
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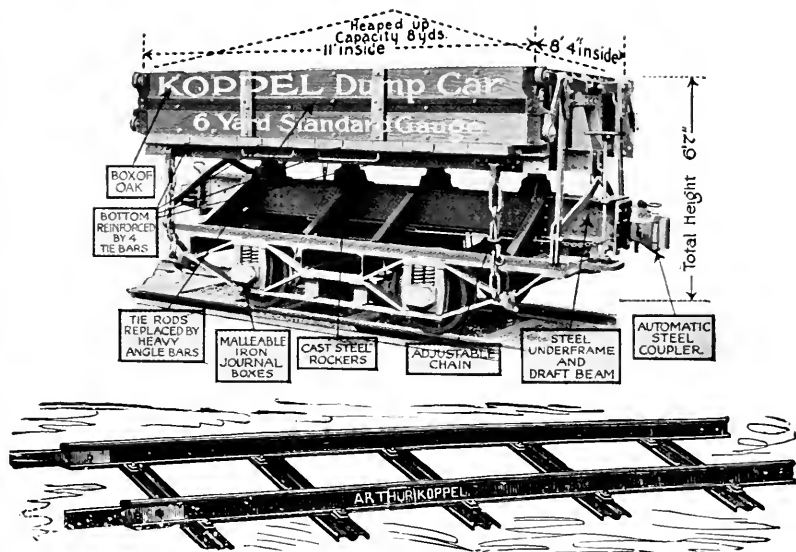
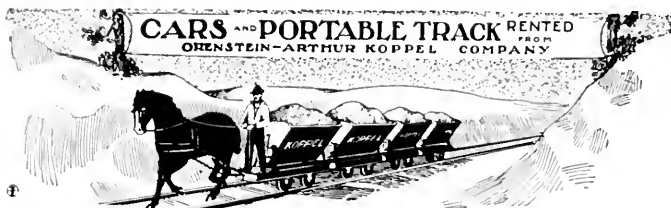
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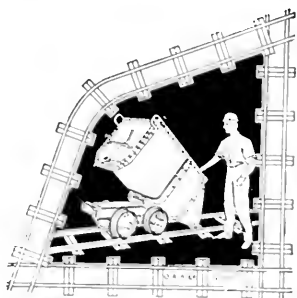


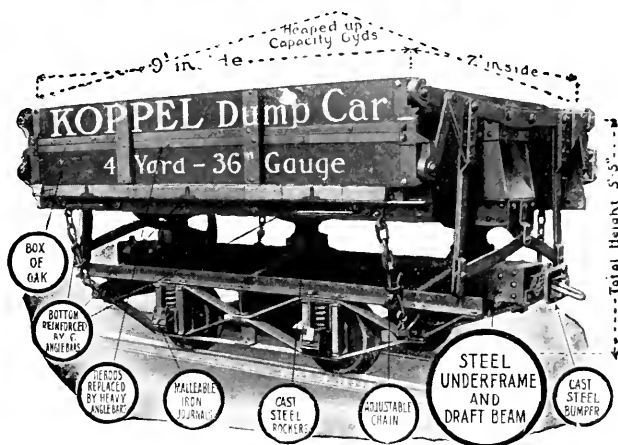
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(Can easily be handled by one or two men)

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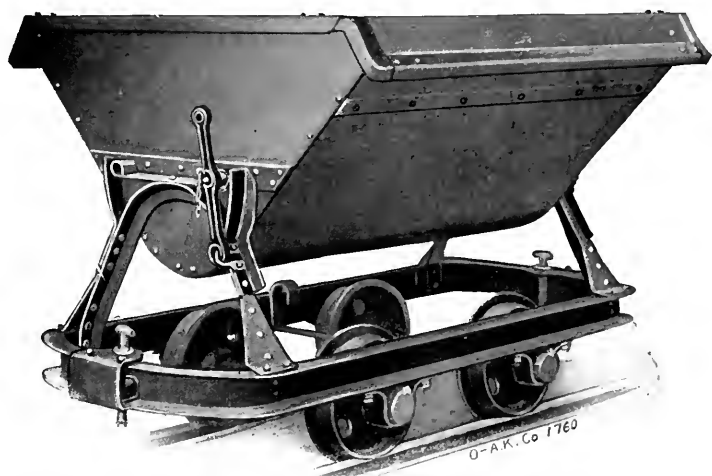
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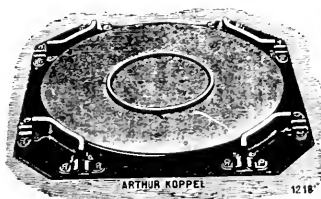


Orenstein - Arthur Koppel Company

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Koppel Double Side Dump Car

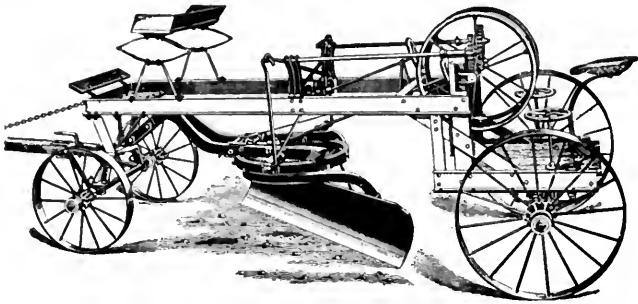


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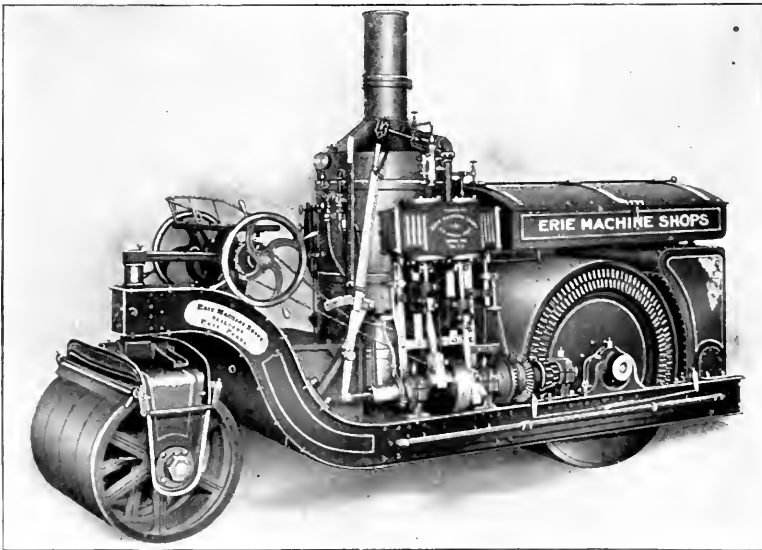
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Russell Reversible Road Machine

Machinery of every description for the building of roads and streets such as Huber Steam Road Rollers, Hauling Engines and Gasoline Tractors, Haywood Wagons, Russel Elevating Graders and Road Machines, Acme Crushers, Screens, Elevators, Bins, Etc. Mundy's Hoisting Engines, Terry & Tench Derricks.



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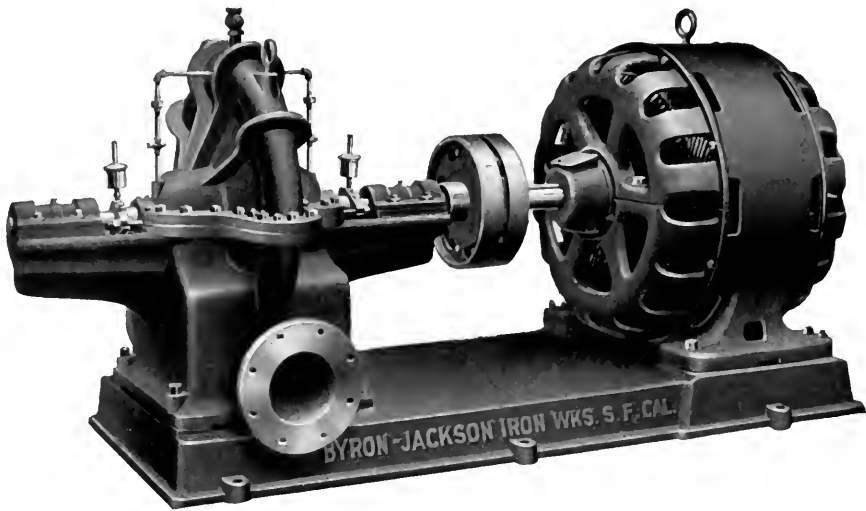


FIG. 209

Above cut illustrates the most modern and up to date Irrigation and Water Works Pump on the market today. A machine built solely on merit.

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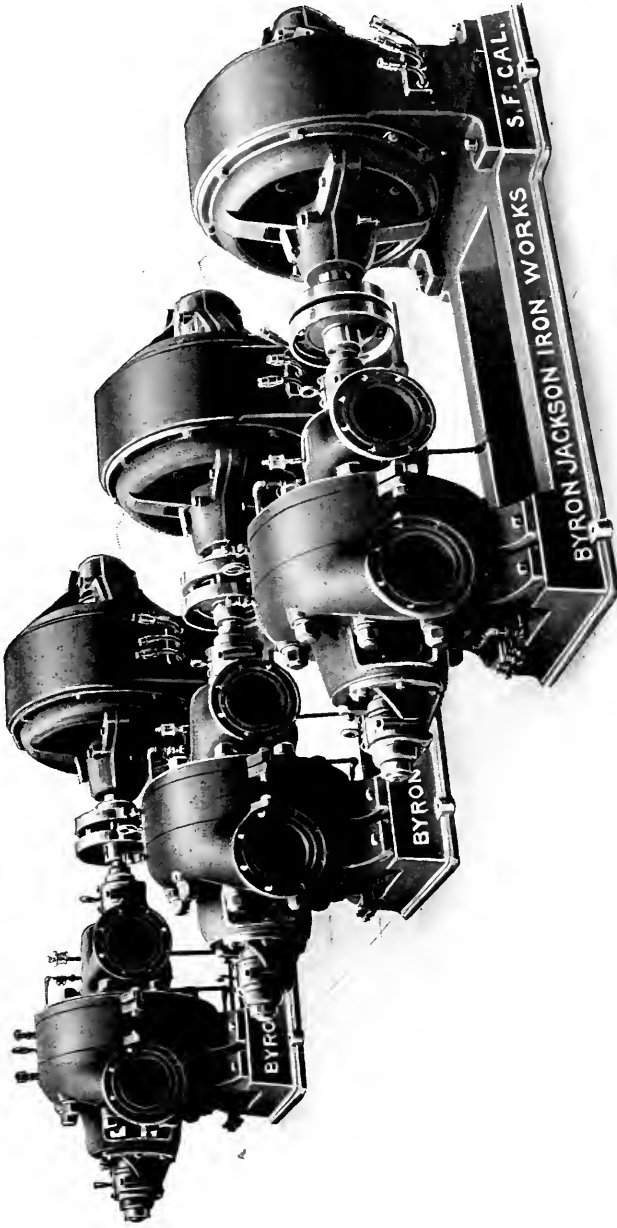


FIG. 152

Three Jackson Type F—2-Stage Turbine Pumps

Installed at the Peoples Water Co's Plant in Berkeley, Cal.

BYRON JACKSON IRON WORKS

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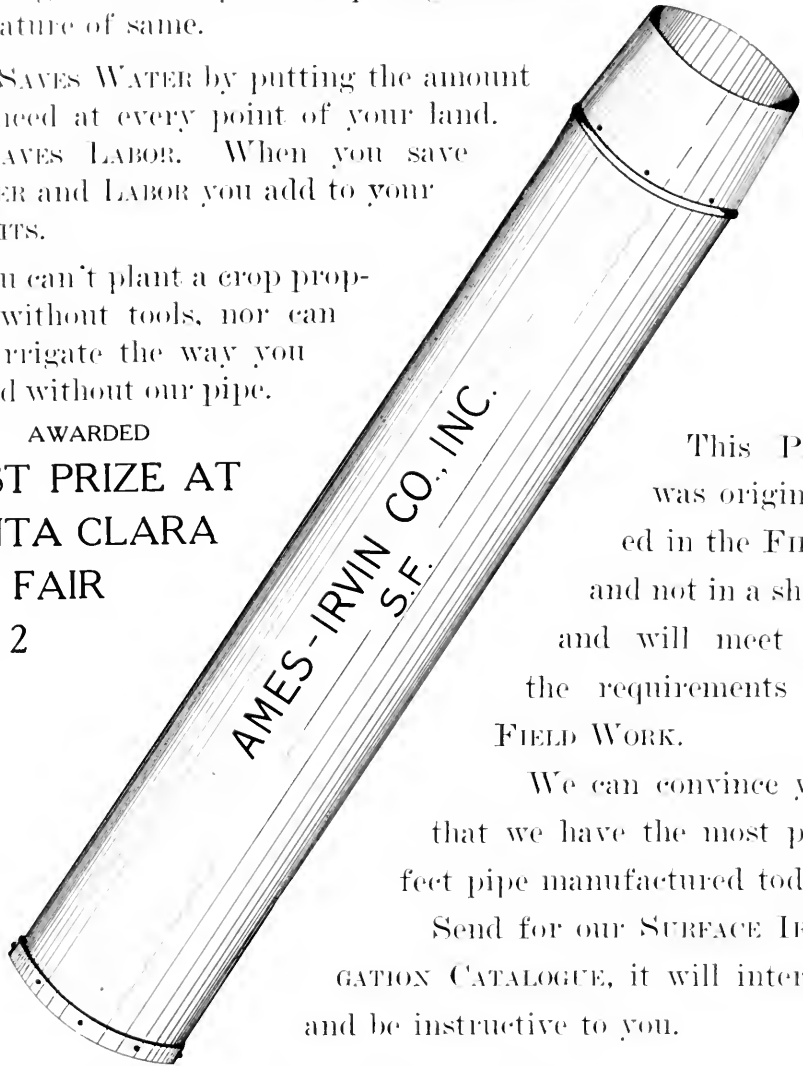
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Our surface irrigation pipe system is the most perfect way of applying water to your crop, regardless of the nature of same.

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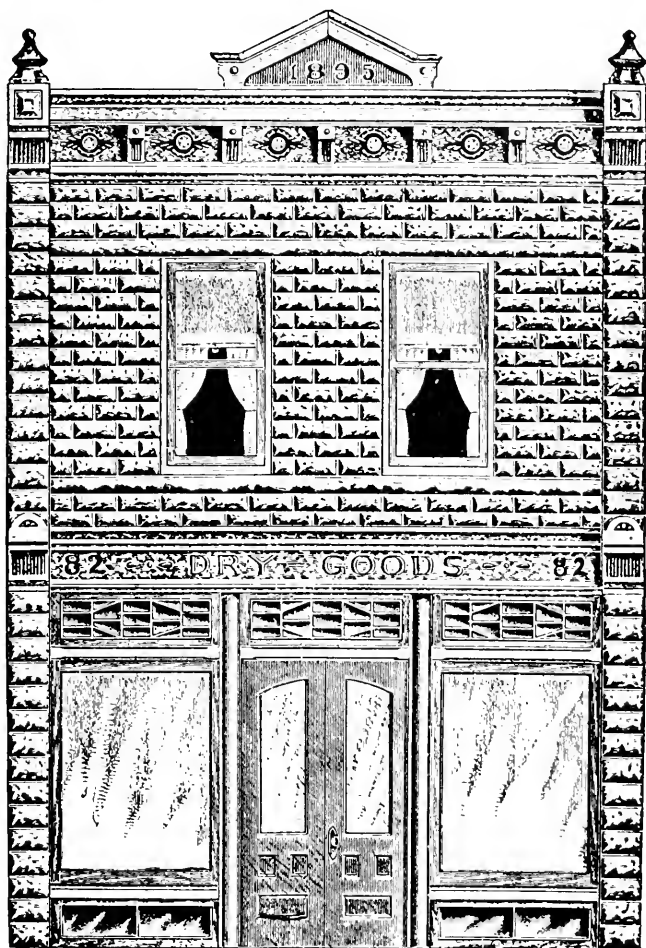
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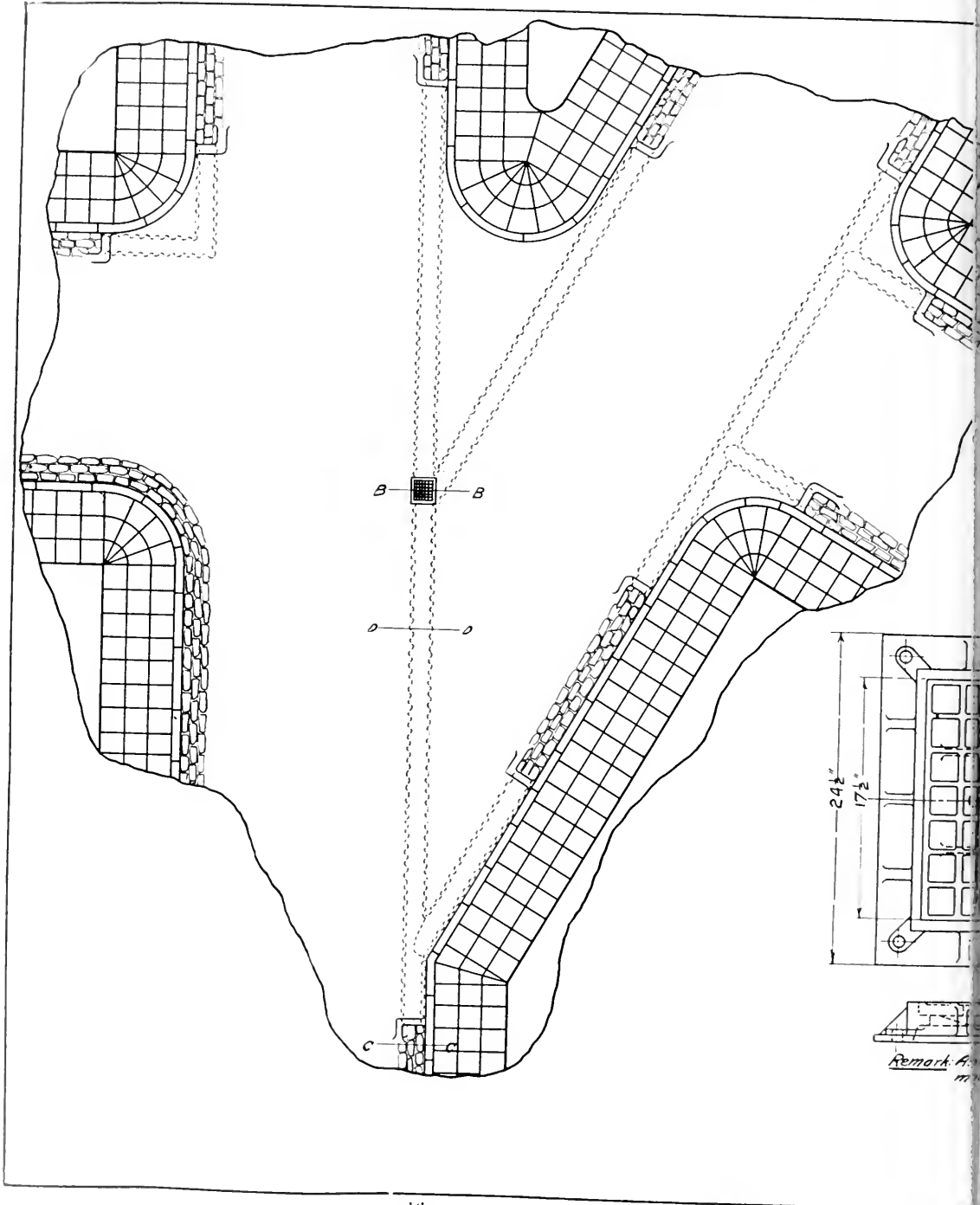
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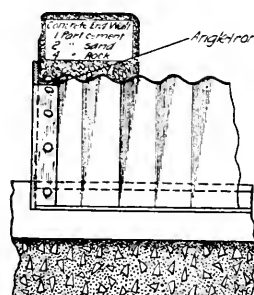
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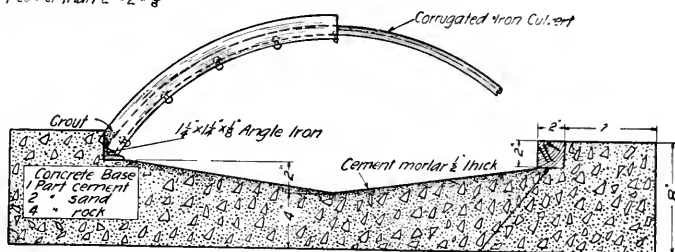


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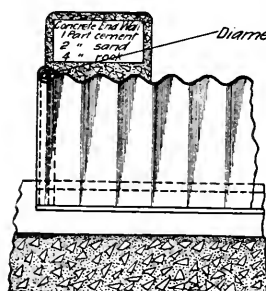
EXHIBIT



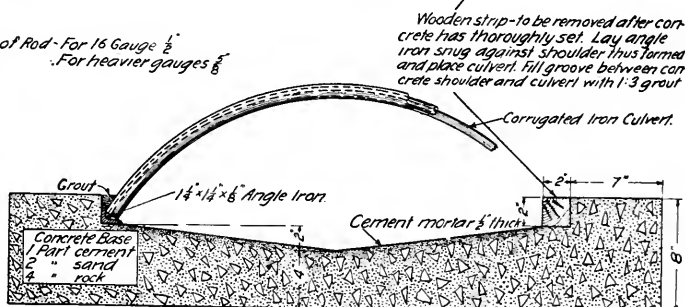
Longitudinal Section



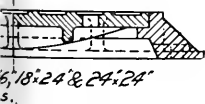
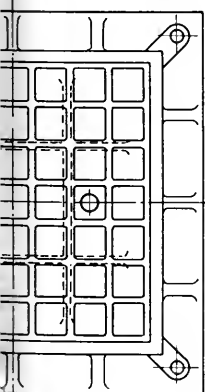
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Fireproof—Everlasting. Composed of solid Asbestos Rock fibres and Trinidad Lake Asphalt.

It is all mineral.

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Won't rust, rot, melt, crack or peel.

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FOR UNDERGROUND PIPES

Specially made tile conduit for protecting and insulating underground pipes carrying steam, hot water, brine, ammonia and other gases or liquids.

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Has no equal in insulating efficiency. Our standard $\frac{1}{4}$ inch wall indicates an average puncture voltage of 32,600 volts dry and 24,500 volts after 40 hours immersion in water.

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The FRINK System of Illumination.

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Let the **THOR ELECTRIC** do your
Weekly Washing and Wringing

Your husband will buy you a Thor if you will tell him what a wonderful heavy work of washing and wringing the clothes, and do your entire

THREE CENTS FOR



The Portable

THOR ELECTRIC
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A complete equipment for washing and wringing clothes. Equipped with electric motor, power reversible wringer and mounted on rollers, so it can be moved from place to place as desired.

Made in three sizes and with
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DO YOUR NEXT WEEK'S

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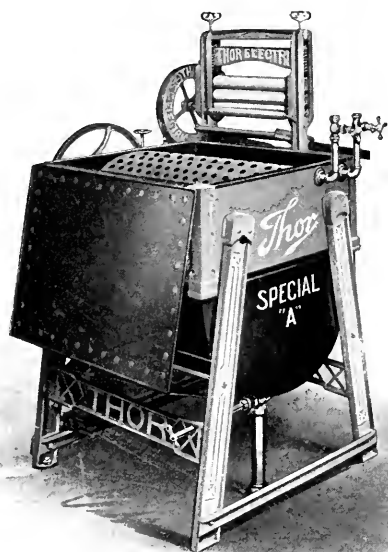
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household help it is—that it will relieve you or your maid of all the
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Special "A"

THOR ELECTRIC
Home Laundry Machine

Specially designed for permanent installation. Equipped with electric motor, metal frame reversible wringer, heavy nickeloid metal cylinder, and fitted with hot and cold water and drain valves for making permanent connections.

Made in three sizes
with heavy copper
body.

WASHING WITH A THOR

never dreamed of. It will make wash-day the easiest, simplest task machine, into any electric lamp socket; put the hot water, soap and clothes wringing.

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Must be the best
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"Chloride Accumu- lator"

Insures the con-
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It is proof
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Local Agency Office:

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SHOULD BE USED IN EVERY CITY

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Simply take your receiver down, pull the switch you wish, and the light immediately calls your patrolman to the box always in plain sight on his beat. Tell him what you want, and call the next. You can throw open as many switches as you wish and call any number or all patrolmen at the same time.

It takes only a moment to place yourself in closest touch with any situation that may arise any place in the city,—and you need not leave your office chair, to learn all about it, and handle it the same as if you were there in person. Thieves and thugs often get away because the officer in charge at the central office can not be fully apprised of all the details at once. With the use of a Dean Electric Flashlite Patrol System, you can instantly learn all the facts, and immediately inform all other patrolmen, in every part of the city, and have your dragnet spread as effectively as it is possible to do otherwise in several hours' time.

Write us for a free demonstration of how it operates, and let us show you how simple and easy it works,—how positively effective it is at all times.—Let the matter of selling the system remain with us.

Write us what you think you need, and we shall gladly co-operate with you in getting the assistance you need.

Flashlite

The distinctive feature of this apparatus is the FLASHLITE idea. It enables police

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STRAIGHT



T.



DOUBLE T.



Y.



DOUBLE Y.



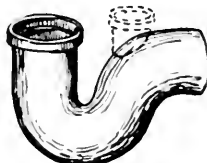
V.



S. TRAP
WITH OR WITHOUT HANDHOLE



HAND HOLE OR
RUNNING TRAP.

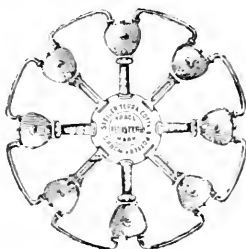


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REDUCER.



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SLANT.



SPLIT.

WHAT THE CITY ENGINEER OF THE SECOND LARGEST CITY OF SOUTHERN CALIFORNIA SAYS OF VITRIFIED SEWER PIPE

"Honorable Council, San Diego, Cal.

"Gentlemen: In the matter of the use of cement sewer pipes to be used in the construction of the extension of the sewer system in this city, I beg leave to report that, in company with Councilmen Woods, Dodson and Adams, I visited the city of Los Angeles and vicinity for the purpose of examining into the condition of a number of cement pipes laid in that city for sewage purposes. The cement pipes examined were reputed to have been in use from twenty to thirty years. I found none of them very flattering. Some were in very bad condition, in fact soft enough to allow one to thrust an ordinary pen-knife through the bottom of the pipe with but little effort, the cement having been entirely eaten away.

"The pervious character of all cement work is a well-known fact; the most dense will absorb from 8 to 10 per cent of its own weight in water, and more often 10 to 20 per cent. This fact alone would seem to be inimical to the lime contained in the cement, as the absorption of 10 to 20 per cent of liquid sewage, imprisoning the same for an indefinite time, will ultimately evolve hydro-chloric and sulphuric acid gases that would attack the lime in the cement and rapidly decompose the pipe into a spongy mass, as may be seen in the septic tanks at the Soldiers' Home at Sawtelle.

"It also appears that the sewage, after this condition of the pipe has obtained, percolates through the pipe and soaks up the soil immediately under the pipes, decomposing, forming acid gases as before, attacking the pipe from the outside and completing its ultimate destruction, this filtering sewage otherwise becoming very unsanitary.

"It is argued that a cement sewer pipe as it is made under modern methods will be free from any of the above objections. I can only say that it is still a cement pipe, subject to absorption and filtration in a more or less degree, according to workmanship. A vitrified salt-glazed sewer pipe, burned to the point of vitrification, has been proved beyond all question to be proof against any destroying agent whatever, except fire, and is used in all conservative practice of able sanitary engineers throughout the United States. There are, however, a number of sanitary engineers who advocate the use of cement pipes, but they are away in the minority. It may, in time, be proven to be good, but under the present very limited knowledge of the subject it is a serious hazard to use it in a \$200,000 expenditure. When inspection, hauling and other incidental expenses of the cement pipe is taken into consideration, there is practically no difference in the cost between it and a first-class salt glazed vitrified sewer.

"With all due respect for your honorable body, may I ask, 'Why take the risk?'

"A very striking example of the decomposition of cement work from sewage gas may be seen in the septic tank at our county hospital, this city.

"Very truly,

"E. M. CAPPS,

"City Engineer."

San Diego, June 5, 1911.

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BITUCRETE is the trade name of an asphaltic concrete pavement produced as follows:

Upon a base of either macadam, cement concrete, or other substantial material, there is spread evenly with hot templets a layer of California "D" asphalt (40° to 80° penetration) heated to about the consistency of molasses. Over this is spread a layer of hot rock and sand heated in a portable dryer at the site of the work. The asphalt is liquified by the hot rock and sand, becomes cemented to the base, and by capillary attraction is drawn up so as to fill the voids and coat the particles of hot aggregate. The whole mass is then rolled and the result is a homogeneous asphaltic concrete securely bonded to the base.

The finished pavement is **smooth but not slippery, hard but noiseless, will not creep, is resilient, tough, durable,** and may be constructed at little or no increase in cost over oil macadam.

It is acknowledged that asphaltic concrete is the best and most economical wearing surface for a substantial and permanent pavement. Its only objection has been its initial cost. By the Bitucrete process the cost of construction is reduced in the following ways:

1. Expensive asphalt mixing plants and incidental labor are eliminated.
2. The asphalt may be transported in tank-cars, saving cooperation, and after being liquified in the cars by steam coils, may be spread on the road from tank wagons, thereby saving extra handling.
3. The materials of construction are assembled at the site of the work with greater efficiency and less cost due to concentrated supervision and the avoidance of long hauls.

Fig. 1. Shows the prepared macadam or concrete base.

Fig. 2. Shows the even spreading of the asphalt with Bitucrete hot templets.

Fig. 3. Shows the hot rock and sand on the asphalt.

Fig. 4. Shows the finished asphaltic concrete pavement after the asphalt has been drawn up by capillary attraction so as to fill the voids and coat the particles.

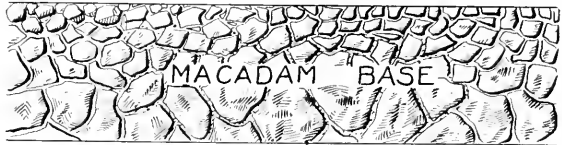


FIG. NO. 1

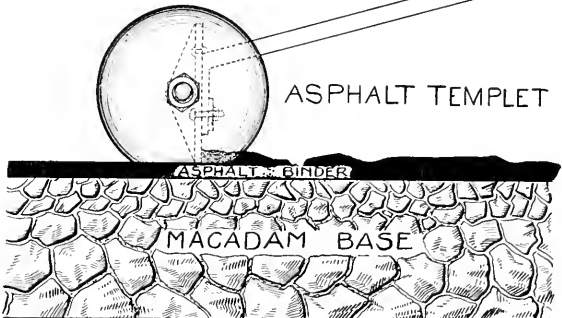


FIG. NO. 2

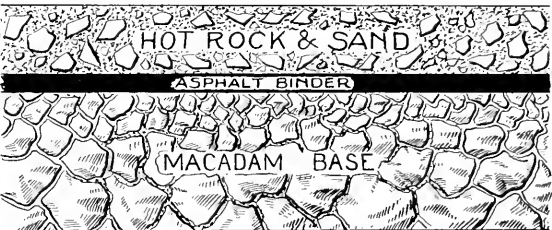


FIG. NO. 3

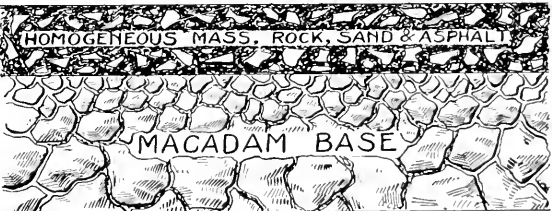


FIG. NO. 4

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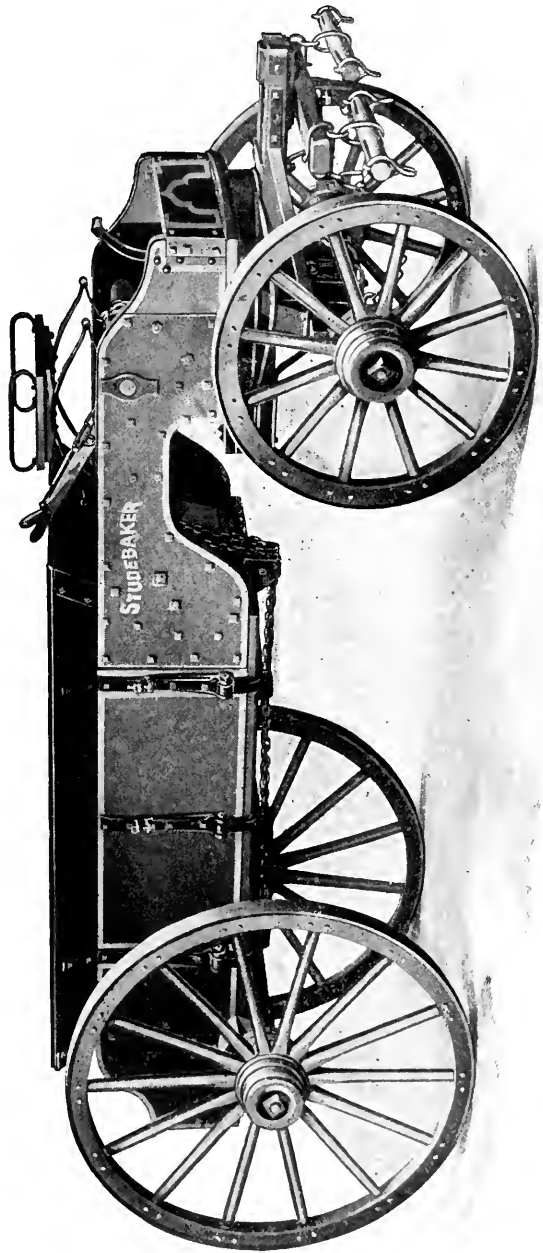
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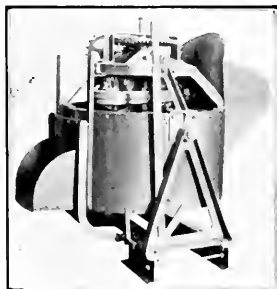
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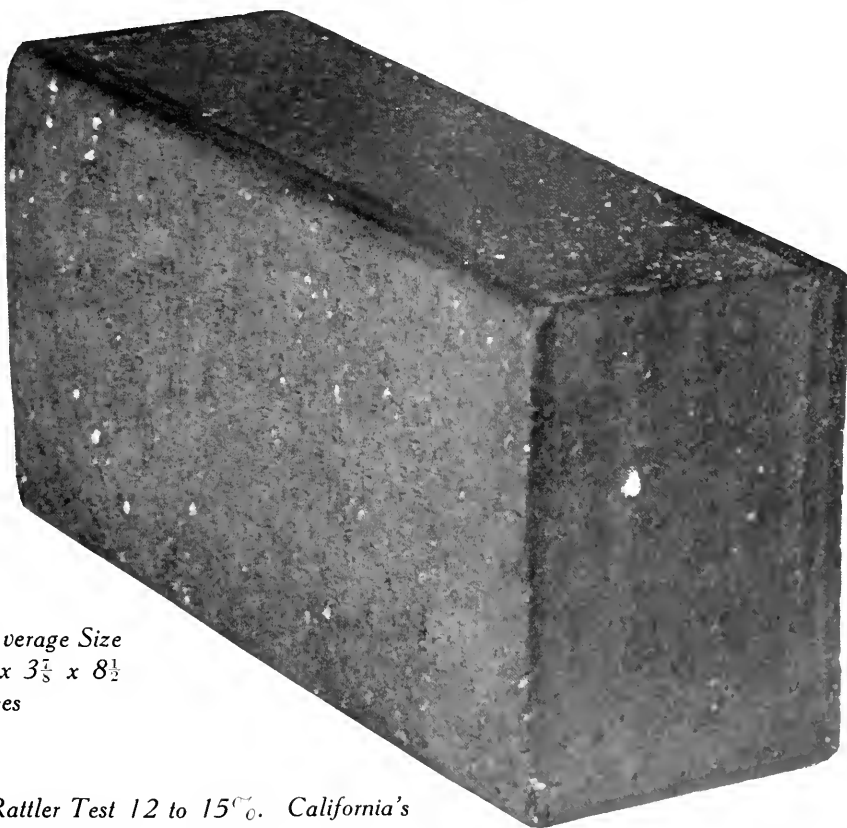
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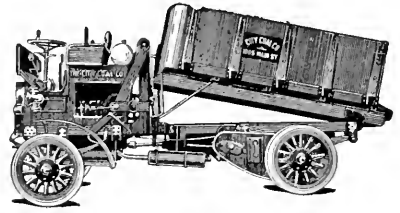
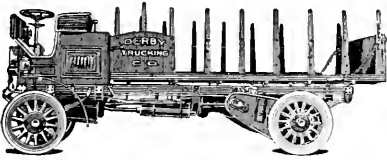
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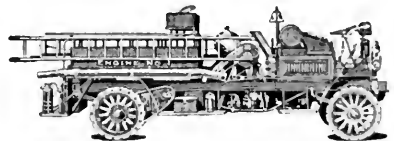
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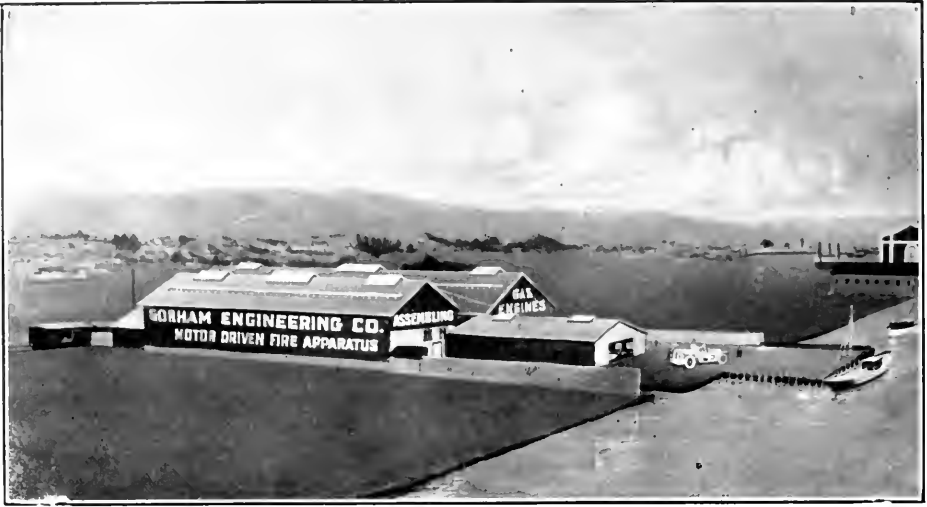
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Vol. XXVI

FOURTEENTH YEAR

No. 9

EDITORS	-	-	-	-	H. A. MASON and WM. J. LOCKE
Editorial Office	-	-	-	-	Ninth Floor, Pacific Building, San Francisco
Publication Office	-	-	-	-	Santa Clara, California

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Published Monthly

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Each city belonging to the League of California Municipalities is entitled to a free copy of this magazine every month for each of its officials; if not received kindly notify the Secretary. See that your City is on the above list.

Berkeley, the Convention City

By Mayor J. Stitt Wilson.



The most kindly and hospitable greetings of the City of Berkeley are herewith extended to the delegates to the Annual Convention of the League of California Municipalities, which meets in our city the last week of September. On behalf of the city officials, civic bodies and citizens generally, I extend to you this hearty welcome.

While you are assembling here primarily for education and conference on civic affairs, nevertheless, we are more than happy to entertain you and to make your stay among us a delightful memory.

Our climate, our location, and our local advantages all conspire to make our city a charming place for our Pacific Coast friends

to spend a most pleasant and profitable week.

Nothing that can ever be written in prose or poem can ever convey to the reader an adequate conception of the loveliness and scenic perfection of the city of Berkeley as a place of residence. Whoever will take an afternoon and skirt the hillside, from Claremont, through the University grounds, on past North Berkeley and into Cragmont and Northbrae and Thousand Oaks, may behold a view of sea and shore, of mountain and cloud, of hill and vale, hard to equal as a residence district anywhere in the world. When we add to the grandeur of the landscape, the marvelous climatic conditions, we reach nearly perfection. The breeze lifts the sea mist and floats it over the hills like bridal wreaths, and the sunlight heats the side hills, and long after dark you enter into atmospheres in the canyons warm and sweet, held close to Mother Earth.

The view from the plain below to the hills penciled along the eastern sky line is by many considered just as beautiful as the view from the hills to the sea, and hence, from the highest street on the hills clear down the slope almost to the bay shore, the comfortable homes of our people are ranged along the pleasant streets in great variety of domestic architecture. No one who has ever lived in Berkeley, or has even put in a few days' tourist travel here, can escape the compelling fascination of Berkeley as a place for the home.

And so it shall remain. Whatever consolidations of these bay cities may come in the future, whatever commercial development may eventually take place on the water front, the rolling hills and the plain to San Pablo avenue and farther will remain the ideal residence district of the Pacific Coast.

What makes Berkeley still more the ideal residence and home city is the State University and our unsurpassed educational advantages. Berkeley is

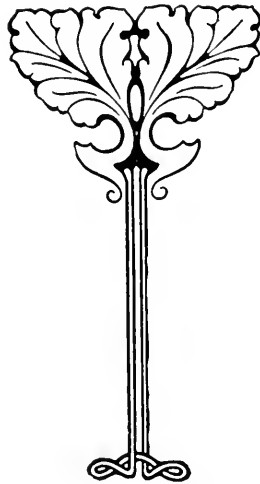
the real Athens of the West. Here the children may come and, at the least cost, secure the highest education in the land. Our public schools and high schools also are the best; faithful and able officials and teachers in command. We have opened the schoolhouses to the people for civic and educational purposes. The beginnings of a system of playgrounds have been made and kindergartens are planned for.

Besides the regular state institution of learning, no culture passes our door. Lectures, artists, players, noted teachers and national personalities—scarcely a month of the year passes but some one or more of the best in America is with us. A list of the events at the Greek Theater in a year would reveal a glimpse of the royal offerings of culture that come to us.

During the last year this whole section has been crossed and re-crossed by a wonderful system of local transportation facilities.

Both the Key Route and the Southern Pacific have extended their lines through the whole North Berkeley region and have brought the whole city into easy access to the centers on both sides of the bay.

But no one writes of his own city when there is an official "City Scribe" who knows everything that is to be known about us, and can tell you in the most interesting manner his willing story. If I were to write further to you about the city to which we welcome you, I would only plagiarize from his voluminous reports. Why try to say again what has been said so well? And so, I introduce you to the story from the pen of our own "City Scribe," Mr. Wells Drury. Under his appropriate headings and pleasing illustrations you may learn to your heart's content all about us before you come to visit us, and when you arrive the best we have to offer will be yours.



Berkeley Phases That Are of Interest to Students of Municipal Development

By Wells Drury, Secretary of the Berkeley Chamber of Commerce.

Berkeley has received considerable attention during the past four years on account of the municipal development that has been accomplished by the preparation and adoption of the new charter. Even before this instrument was completed it became the subject of debate among students of civic questions, and its operation has been watched with interest by experts in municipal management. Its results are being scrutinized and analyzed by students of sociology.

There are several reasons for the prominence accorded to the workings of the Berkeley charter, those especially appealing to investigators being the features which are unique, some of which were never before attempted. Notably, the plan of first and second election, which has already received the most positive approval by cities that have copied the provisions of the Berkeley charter on this subject. Briefly, the first election is a primary or nominating election unless one candidate receives a clear majority over all competitors. In the event of such majority being given, the candidate so favored is elected on the first ballot. Otherwise, the two highest are placed on the ballot for the final contest.

After more than three years of experience with the charter there appears to be a general feeling of satisfaction. Several minor amendments have been made, but in the main the general principles of the instrument have been maintained. So far as known, there is no demand for returning to the former manner of governing the city. The controlling body is composed of the Mayor and four Commissioners, each of whom is held responsible for the conduct of his department. The City Auditor and the members of the Board of Education are elected. All other municipal officials and employees are appointive. The initiative, referendum and recall provisions of the charter are intended to keep within the grasp of the people the final decision touching matters of policy that are deemed of sufficient importance to require direct interposition by the body politic.

How far the new charter has proved beneficial from a material standpoint, of course no one is able to say. That Berkeley's prosperity is marvelous is patent, but whether it would have been even greater under a different form of government is manifestly a question beyond the reach of logical conclusion until after that different form is put to the test.

Praised by a Poet.

Joaquin Miller, the Poet of the Sierras, is an ardent admirer of Berkeley, as shown by his eloquent and classical lines in praise of this beautiful city:

BERKELEY:

"Westward the course of empire takes its way."
—Bishop Berkeley.

Say, what shall be said of the great Bishop's town?—

Bishop, and prophet, and poet and seer—

Why, pluck up a cedar and set her fame down

In gold and in flower-fed atmosphere.

City of cities in stories to be—

Classical, scholar-built Berkeley.

Aye, write her fair story—as fair as a star,

As sweet as her sea-winds, as strong as her sea—

City with never a stain or a scar—

City of deeds and of destiny.

Sea-born and sun-bred Mecca to be—

Matchless, magnificent Berkeley.

—Joaquin Miller.

Berkeley is the second city of importance in Alameda County, being separated from Oakland, the county seat, lying to the south, by an imaginary line in the vicinity of Aleatraz avenue. The adjoining region is one of the most fertile in California. Fruits and flowers, vegetables, dairy products, poultry and eggs, grain—all these yield bountifully. Berkeley enjoys a distinct advantage by having this base of supply so near at hand.

Superior Transportation.

Berkeley's substantial prosperity is increased and made more sure by the superior transportation facilities enjoyed by the people. Electric power is used exclusively for the urban and inter-urban trains and cars.

This table gives an idea of the passenger service:

Passenger trains between Berkeley and San Francisco, daily.....	630
Trolley cars between Berkeley and Oakland, daily.....	2500
Electric cars operating entirely in Berkeley, cross-town and extensions.....	536

Experts in transportation declare that no other community of similar size in America is served so well and so economically as Berkeley. The trip from Berkeley to San Francisco is made in thirty-five minutes. The fare is ten cents; by commutation, five cents. From Berkeley to the center of Oakland the time is twenty-five minutes or less; fare, five cents. For five cents the trip may be made to Alameda, Fruitvale, Dimond, and other points. The thriving cities of Albany and Richmond, Pullman and Stege, immediately to the north of Berkeley, are reached by means of electric trains and steam railroads. All these communities, and San Francisco, contribute to Berkeley's population. A person having business in any of the places mentioned may still maintain a residence in Berkeley.

These conveniences of ingress and egress must be reckoned as advantages of immense significance in a well-ordered life. The householder in this city enjoys the privileges of metropolitan recreations and amusements while keeping a home amid sylvan surroundings—a condition that meets the needs of those who care for the restful atmosphere of a quiet neighborhood after the activities of the day.

Two continental railroads that pass through Berkeley—the Southern Pacific and the Santa Fe—carry passengers and freight to and from all parts of the country. The Western Pacific Railway Company, which has its terminus at Oakland, Berkeley's sister on the south, contributes its influence to the equalization of traffic charges. Daily freight-steamer service between Berkeley and San Francisco adds the element of water competition, minimizing freight rates.

The San Francisco-Oakland Terminal Railway Company (known as the Key Route), with a terminus in Berkeley, is planning to extend its lines to the Santa Clara Valley.

The hills dividing the counties of Alameda and Contra Costa have been pierced by a tunnel. Through this, traffic by teams and automobiles is large and is growing. A second tunnel is in course of construction, to be used by an electric railway which will give quick connection between the large cities on the east side of the bay and the agricultural and horticultural valleys beyond.

The advancement of Berkeley is founded upon a substantial basis. This is illustrated by the gradual and uninterrupted rise of the total number of inhabitants.

Population of Berkeley in 1912 (carefully computed)	43,659
Population of Berkeley in 1900 (official census)	13,445
Gain in twelve years.....	30,214

Weather and Climate

When a stranger is invited to a city his first inquiry is concerning climatic conditions. He has a right to know something about the weather. Careful observations have been made at the University of California for twenty years, a synopsis of these observations showing that in an average year the rainfall is expected to aggregate twenty-seven inches, and this total is usually reached, insuring prosperity for this region, including, of course, all the cities on the Bay of San Francisco.

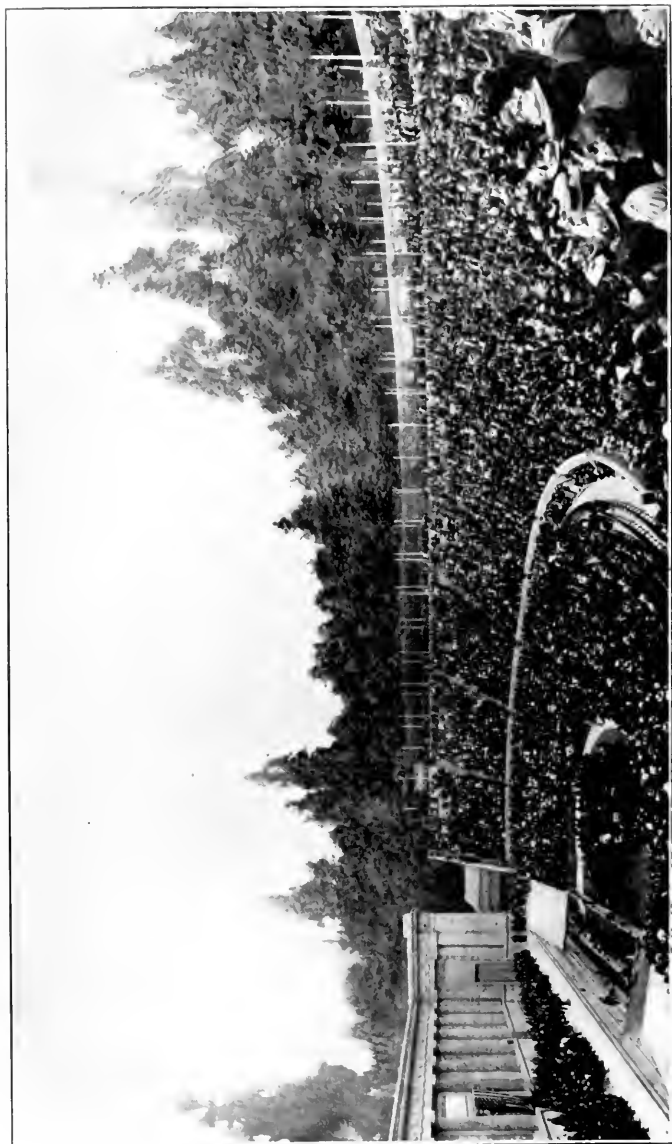
The annual mean temperature in Berkeley, based on these official records, covering twenty years, is stated to be 54.1 degrees above zero.

Berkeley a Health Resort.

By reason of the climatic conditions Berkeley is well known as a place where the death rate is low and there is almost entire freedom from contagious and infectious diseases.

But climate, though important, is not the paramount consideration in Berkeley. The main point, after all, is that you can make a good living while having your home here, and all the time enjoy the pleasant surroundings.

Families coming from places where the use of automobiles is restricted by unfavorable weather conditions, will be pleased to know that here they



GREEK THEATER, BERKELEY

will find scarcely a day in the twelve months in which they will be hindered from enjoyment of motoring trips or carriage drives.

Berkeley is particularly fortunate in this regard. The city, lying on a gently sloping hillside, has natural drainage to the Bay of San Francisco, and within a few minutes after a shower the streets are dry.

Berkeley is a good point from which to begin an automobile tour of California. The start from Berkeley may be made at any time, as El Camino Real, the ancient king's highway, planned by the early Spanish rulers, passes through this city, along the line of San Pablo Avenue, one of the city's principal thoroughfares.

A Summer Home.

As a summer home Berkeley is most enjoyable. Residents of other districts appreciate this characteristic of California's University City, and the result is that although some Berkeleyans go away for vacation, the city is not depleted, because of the incoming summer visitors.

Berkeley has a valid claim to representation at the international congress of thalassic therapeutics that is held in high repute in Europe, and which is supplying scientific data showing the beneficial effect of sea breezes on the human system, tranquilizing the nerves, energizing the body, and prolonging life.

Bungalow Dwellings Pleasing to Many.

The bungalow type of dwelling, so common in Berkeley, comes in response to the modern taste for simplicity and comfort. These unpretentious but artistic structures lend themselves easily to the house-garden effects that are so greatly admired, and with their wide verandas and semi-enclosed sleeping porches are found to be most delightful habitations.

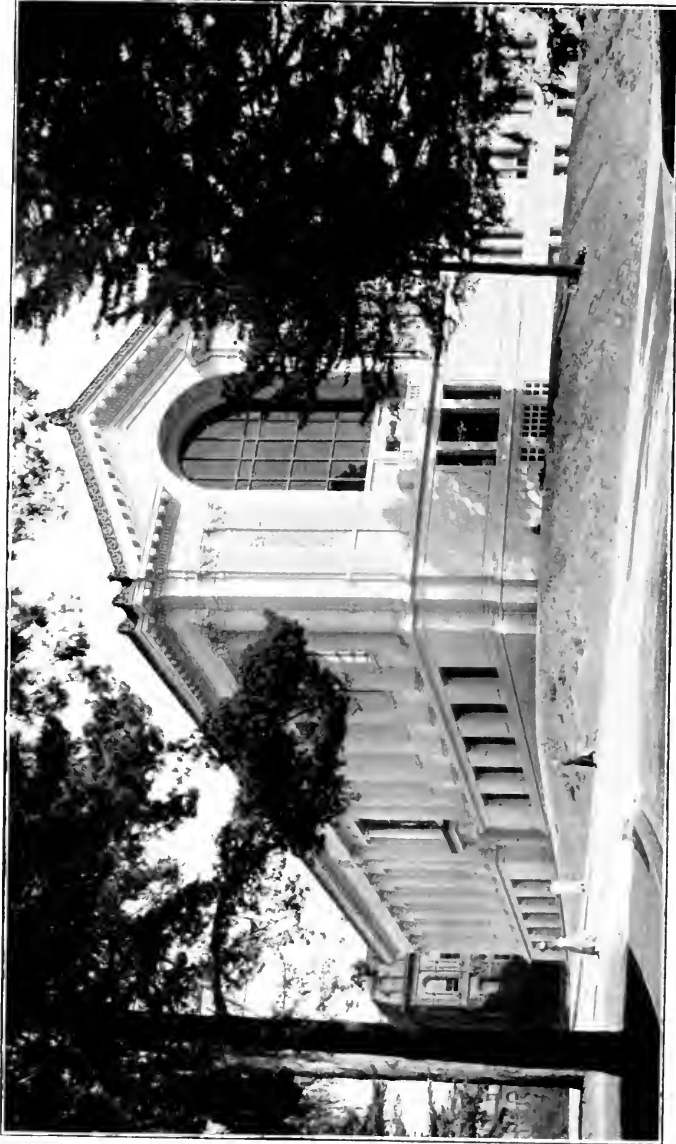
Manufacturing Opportunities.

Berkeley offers unusual opportunities for manufacturing plants. The entire western part of the city is well adapted to manufacturing industries and extensive warehouses. There is a wide area of level land awaiting the touch of enterprise and capital to awaken it into a condition of unexampled affluence. Already fifty large factories are in operation in addition to a number of smaller ones, but so ample is the space available that there is room for many more.

Electric Energy Utilized.

From statements received from the Pacific Gas and Electric Company it is learned that the electric energy supplied by that corporation for use in Berkeley amounts to 12,408 h. p., whereas in 1895 the total was only 140 h. p., showing that the horsepower now utilized is eighty-seven times as great as it was seventeen years ago. This power is used for manufacturing as well as for light and heat. It is generated in the Sierra Nevada mountains.

The Great Western Power Company has recently extended its field of operations to Berkeley, adding the element of competition in this line of business.



A UNIVERSITY BUILDING

Factories Are Encouraged.

Capitalists who are contemplating the establishment of factories on the Pacific Coast are invited to investigate the advantages of Berkeley before making a final choice of site.

In recent years the managers of some of the largest concerns in the country have expended hundreds of thousands of dollars to create about their establishments an atmosphere of home life and a feeling of quiet contentment which must inevitably add to the productive power of those employed. In Berkeley these conditions are already in existence, and this phase will appeal to thoughtful investors who are accustomed to weigh carefully all the circumstances in selecting a location.

The enlightened workmen of the country realize as fully as their employers the advantage, for themselves and their families, of living in such a city as Berkeley, and not only are they glad to make their home here, but the satisfaction which they experience adds to their effectiveness as producers in the various industries in which they are engaged.

Water Front Development.

Berkeley's ambition to own and develop its water front is a laudable proposition, and there is no reason why it may not be an accomplished fact. The cost is not prohibitive, considering the large area of productive property that would be brought into existence. Occupancy and use of this new land, under the precedents established in California, would be ceded to the municipal government of Berkeley, and in a short time would become a source of revenue. The space would be so ample that the city might offer special inducements to factories in order to secure their location here.

Municipal Wharf.

Berkeley's municipal wharf has been in use for four years. The original cost was \$100,000. Important additions and improvements have been made. The wharf has proved helpful to the industrial and commercial interests of the community, contributing materially to the welfare of the people of the western part of this city.

Educational Capital of the Pacific.

Berkeley's primacy as an educational center is undisputed. Here is the seat of the University of California, one of the chief scholarly institutions of the world. Around the university are groups of colleges, academies and schools devoted to all the fine arts, and to various handicrafts and industrial pursuits that appeal to minds devoted to the higher callings, as well as to the practical, every-day affairs of modern times. So varied are the offerings of instruction that there is no branch of inquiry which may not be pursued with advantage in Berkeley.

The public school department of Berkeley leads in important particulars. So favorably are these schools known abroad that families come here from all parts of the state in order to place their children in the various classes.

These elements have contributed to the creation of a community of culture and refinement. Social conditions are all that can be desired.

The Berkeley High School is accredited to the leading universities of the United States. The High School building, just completed at a cost of \$300,000, is capable of accommodating 1,500 pupils, and is filled to overflowing, so that an additional building will be needed soon.

The State Institution for the Deaf and the Blind is in Berkeley, with 230 receiving instruction.

There are many seminaries, private schools, and similar establishments.

The University of California is one of the great institutions of learning of the world. The faculty includes 582 professors, assistant professors, instructors and officers. The number of students is constantly increasing, the latest report of all departments giving a total of 6,390, not including students in extension courses, or in the short courses in Agriculture.

Under the present management the advance of this university has been gratifying. Development in branches for imparting knowledge in practical every-day affairs has had the effect of bringing it into still closer touch with the people. The university gives special attention to many of the most important industries—agriculture, horticulture, viticulture, stock breedings, mining, engineering, architecture, structural operations of all departments, manufacturing, commerce, business procedure, and the various other callings incidental to present day conditions.

Military training is required of all male students during the first two years of attendance, under direction of an officer of the regular army.

Summer Session Attracts Adults.

The summer session of the University of California covers six weeks, from about June 20th to the latter part of July or the first of August. The total enrollment in 1911 was 1,950; in 1912, it was 2,272, not including the summer school of surveying. The university makes no formal requirements for admission to the summer session.

Public Library.

Experienced educators declare that the test of a library's efficiency is the use of it by the people. Judged by this standard Berkeley's public library is entitled to high rating.

It contains more than 43,000 volumes—a book for each inhabitant of the city. The library has been subjected to expert examination, and the selection as shown in the catalogue has received official approval by representative librarians who conducted the inspection.

The circulation of books this year as compared with last year shows an increase of 18,813 volumes, the total for twelve months being 226,857, divided thus: Fiction, 104,536; juvenile, 57,215; adult classed books, including science, history, etc., 65,106. These figures indicate that the circulation of books is in the ratio of more than five books a year to each inhabitant.

As would be expected in a community like Berkeley, there are many publi-

cations in this library relating to the classics and the arts. Great care is exercised in the selection of the fiction department.

The rooms are spacious, well lighted and convenient. All parts of the city are served effectively through the usual branch stations and the main office. This library has exchange arrangements with the State Library at Sacramento and the University of California Library, by means of which readers may obtain rare and expensive books that are not on the shelves of the local library.

Churches.

Berkeley has over forty churches, including all of the modern denominations, well housed, and served by a strong ministry.

No Slums.

There are no slum districts in Berkeley. There is no section of this city in which a respectable family need be ashamed to live. The schools, art institutes, civic centers, fraternal organizations, religious societies and social conditions tend to elevate and enrich the lives of those who come here.

In all the world there is not a more cosmopolitan community—cosmopolitan in the best sense: that of equal opportunity and equal respect. Character and personal worth are what count in fixing the status of the individual or the family in this community, and the best of everything in the city is open to every one who desires to share and enjoy it.

Berkeley as a Music Center.

Berkeley is popular as a musical center. For this there are several sufficient reasons. The climate is so favorable to study that pupils may continue their work the year round, as well in summer as in winter. Students at the university who desire to keep up their music may do so without inconvenience, there being many teachers of note in this community. These earnest students of music naturally are drawn to a place where they have an opportunity of attending grand opera, and this is afforded by nearness to San Francisco, where an opera season of at least six weeks is given each year. A permanent symphony orchestra has been established in San Francisco.

The Famous Greek Theater.

The Greek Theater on the campus, the gift of William Randolph Hearst, is a prime attraction. The floor of the diazoma is 400 feet above sea-level.

In this out-door auditorium noteworthy performances are given throughout the year. Not a month passes without some entertainment of high character being presented here under the sunshine or under the stars, the place being equally well adapted to day or night productions. Every Sunday while the university classes are in session, and during the period of the summer school as well, concerts are given in the Greek Theater. These concerts are free to the public, and so well are they appreciated that they are attended by music lovers from all the cities about the Bay of San Francisco.

Student entertainments and musical and dramatic activities center in the Greek Theater, for which reason it is the focus of most of the entertainment



A SCENE IN BERKELEY

offered by the young men and women who for four years dwell in Berkeley "under the oaks."

Berkeley is well supplied with places of amusement. In addition to the usual vaudeville and motion picture resorts, which are well conducted and carefully censored, there are lectures, concerts, dramatic entertainments and the like, with other social events almost every day and evening.

Aquatic Sports.

Aquatic sports are open to citizens of Berkeley. This is natural for a community dwelling on the shore of a great bay, with the ocean directly in front.

Berkeley yachtsmen have their mooring place and clubhouse on Sheep Island, a short distance from the municipal wharf, which extends from the foot of University avenue. Pleasure craft of every description may be seen here, and the seasons all being so pleasant it is not necessary to go into winter quarters.

In addition to the fleet of white-winged racers and other sailing vessels, there is a mosquito fleet of motor-boats. This form of healthful recreation is growing in popularity.

The bay at this point is filled with food fish. Anglers are permitted to use the municipal wharf free of charge.

Municipal Playground.

Berkeley has a municipal playground. It is on the grounds of the City Hall, directly back of that public edifice. Being centrally located it accommodates pupils from several schools.

Other park areas owned by the city will soon be supplied with playground apparatus.

Children Make Gardens.

Childhood in Berkeley has a new joy because of the interest in gardening that has been aroused among the younger generation. Most of the public schools have gardens that are planted and cultivated by the pupils.

In addition to this there is a model garden on the grounds of the University of California, to which all children of the city are admitted on equal terms. The children are given practical instruction by men eminent in horticulture. This miniature community is called Garden City and is governed by officers chosen by the children, more than 300 boys and girls participating. They work the small plots of ground allotted to them, and grow first-class vegetables, according to the most approved and scientific methods, which they sell to housewives of the city, a market sale once a week at the campus gateway affording opportunities for this traffic.

A bank managed by these young citizens is part of the Garden City scheme. The children are encouraged to deposit in this bank the money gained by sale of vegetables, this being optional, as the greatest liberty is accorded in every way to the youngsters.



A SCENE IN BERKELEY

Three acres have been set apart for the use of the children, and more space will be available when additional enrollment of little gardeners makes necessary an enlargement of Garden City.

Golden Rule Police Department.

Berkeley was one of the first cities of America to adopt the Golden Rule method in police management. The first lesson inculcated is helpfulness. The records show that there are few cases requiring police interference in Berkeley, and when occasion arises the patrolmen are taught to offer first aid in extricating the sufferers from whatever difficulties they have encountered—whether moral or physical. Arrests are made only as a last resort.

To take a man home, when such action is warranted by good judgment and humane sentiment, counts as much in the official records as to take him to jail. The result has been entirely satisfactory to the Police Department and to the community. Berkeley's freedom from crime, comparatively speaking, has led other communities to send congratulations to the officers of this municipality.

There is not a saloon or a disorderly house in the city.

Freedom From Crime.

Berkeley enjoys unusual immunity from crime. With a population of more than 43,000 inhabitants the city would be entitled to have two police courts, yet considering the character of the community the charter-makers were able to insure a saving in taxes by providing for only one justice of the peace, who in addition to hearing the criminal cases, also handles the civil litigation of the citizens, and has spare time in which to serve on the bench in other cities of the county, when requested to do so.

Minimum Fire Loss.

Local statistics show that the buildings in Berkeley range high in grade of material and construction. This in a measure accounts for the small loss by fire, the annual destruction of property averaging less than \$30,000. Last year it was only \$23,145.

The Fire Department is equipped with auto-truck engines and electrically propelled hose wagons. The National Underwriters' Association in a recent report gave cordial commendation to the Berkeley Fire Department.

Assessment Roll.

Berkeley's property roll returned for taxation is \$3,315,555 greater this year than in 1911, notwithstanding exemptions amounting to \$1,900,000 authorized by recent legislation. Of this amount approximately \$100,000 is on account of property belonging to veterans of the civil war, now legally exempt from taxation, and the remainder is for corporate property.

The consistent growth of Berkeley's tax roll is shown by the official reports:

1912	\$40,418,800
1911	37,102,245
1910	34,946,314

Low Tax Rate.

Berkeley's tax rate is lower than that of any other city of its size in California. The latest levy was seventy-nine cents per \$100 valuation for city purposes and \$1.58 for State, county, school, and all other purposes, making a total of \$2.37 for the year.

Small Municipal Debt.

The bonded debt of Berkeley is only \$345,790. There is no floating debt.

Financial Institutions.

Seven strong banks serve Berkeley's commercial and financial needs.

Hotel Accommodations.

Berkeley has sufficient hotel accommodations for the present, and plans are maturing for taking care of those who are expected during the crowded years of the immediate future.

The latest hostelry to be completed is the Hotel Shattuck. The Hotel Carlton is another spacious establishment. Work is progressing on the Hotel Claremont, which overlooks the picturesque district that bears its name.

New Postoffice Building.

Berkeley will have a new postoffice soon. The government has granted an appropriation of \$180,000 for this purpose. Of this amount \$30,000 has been paid for the site, at the corner of Allston way and Milvia, leaving \$150,000 available for the building, which is planned to harmonize with the style of architecture most prevalent in Berkeley, as indicated in the buildings on the campus of the University of California.

NOTE—Grateful acknowledgment is made to Messrs. Meikle, Brock & Skidmore for the artistic views of Berkeley which illustrate this article.



THE WORK OF THE LEAGUE.

The students of municipal government throughout the United States concede that the cities and towns of California are the most progressive in the country. This is unquestionably true, as those who have traveled over the country to any extent can easily testify. In other words, the cities and towns of our state have made more public improvements, such as paved streets, sewers, and schoolhouses than in any other state of the Union. In addition to this, it is a well known fact that the municipalities of California have a larger measure of Home Rule than the cities of other states enjoy.

Why is this? Did it just happen by accident or is there a particular cause for it? Most of the cities of California, particularly in the southern part of the state, are comparatively new, populated with new people who look with a friendly eye on new methods and new ideas. This is one reason, but not the principal one, why the cities of California have taken the lead. They have learned the value of maintaining an organization whereby they might keep in touch with one another and interchange ideas and experiences from time to time. In the words of former Mayor J. J. Hanford of San Bernardino, "this association (meaning the League of California Municipalities) affords the most convenient means for the gathering of new ideas in connection with the administration of municipal affairs. We hasten the achievements of those things that are beneficial to the cities and towns and their inhabitants. Whatever is good we recommend; whatever has proved a failure we point out, that other cities may avoid, and in pointing out the failure and the improper methods of doing public work, we save vast sums to taxpayers. I think you will agree with me that the work we have on hand is the most important that can fall to the lot of any set of men."

THE EXPOSITION AND ITS VALUE AS AN EDUCATOR.

Three years ago at San Diego the plan was inaugurated of holding an Exposition of municipal machinery and supplies in connection with the annual conventions of the League, the idea being suggested by some of the dealers. The plan took hold at once and became an established feature. It is much easier and cheaper to show goods to city officials who are gathered together in one place, than to pack samples all over the state; and in fact, for such lines of goods as heavy machinery, it is almost impossible to carry samples at all. For this reason officials from interior towns were compelled to send one of their number to the large cities in order to make their purchases. There was no such opportunity to make a comparison of the goods offered such as an Exposition affords. Thus the Exposition feature of our meetings is as valuable to the delegates as it is to the exhibitors, and it is to be hoped that those who have the good fortune to attend this convention will take every advantage of the opportunity afforded to inspect the machinery and supplies which will be shown. Do not hesitate to ask questions, and do not be backward about taking catalogues. You may rest assured that only the most responsible firms will participate, for the manufacturer of low grade goods would not risk the comparison to which his articles are subjected at such an Exposition. Remember, too, the exhibitors have gone to great trouble and expense which, for no other reason, entitles them to the most courteous consideration at your hands.

SPECIAL RATES TO BERKELEY.

Delegates are cautioned to ask for a blank certificate on purchasing their railroad tickets. It will be necessary to pay full fare on the going trip. At the convention, have the certificate mentioned signed by the secretary. When ready to purchase your return ticket, present the certificate: it will be good for two-thirds the return fare.

The railroads have also granted a special freight rate on all exhibits, being a one-way rate for the round trip.

HOTEL ACCOMMODATIONS.

The Hotel Shattuck in Berkeley has accommodations for a number of delegates at special rates. Those desiring to stop in San Francisco will find good accommodations at the Hotel Hacienda, 580 O'Farrell Street, or the Hotel St. Francis. The following letter from Mr. Drury of the St. Francis is self-explanatory:

TO MEMBERS AND EXHIBITORS OF THE FIFTH ANNUAL CONVENTION OF THE LEAGUE OF CALIFORNIA MUNICIPALITIES:

It is my pleasure to state that the Hotel St. Francis may be used as headquarters for the visiting members and exhibitors of the Fifteenth Annual Convention of the League of California Municipalities, and I shall put forth my best endeavors to so arrange the hotel accommodations that every one shall be as well, if not better, satisfied, than when at the Potter Hotel, Santa Barbara, where the Fourteenth Annual Convention was held and where it was my privilege to have helped to bring about the successful ending of your previous affair.

Again assuring you of my hearty co-operation and that of the entire staff of this hotel, I am,

Yours very truly,

E. L. DRURY,
Assistant Manager.

INFORMATION BUREAU.

An information bureau will be maintained at the Southern Pacific Depot in Berkeley for the convenience of the delegates and exhibitors.

SEMI-ANNUAL REPORT OF THE HIGHWAY MAINTENANCE DEPARTMENT OF SAN JOAQUIN COUNTY, JULY, 1, 1912.

Indicating that first cost is not entitled to much consideration.

As the SEMI-ANNUAL REPORT of the Highway Maintenance Department of San Joaquin County for the six months ending June 30th, 1912, the following report is respectfully presented:

The Board of Supervisors of San Joaquin County, to whom is intrusted the care and control of all the Highways of the County, is specially instructed to maintain all Roads and Highways that have been permanently

improved from funds raised by the bonding of taxable property of the County.

In order to carry out the work of the maintenance of the improved roads in a comprehensive and practicable manner, in compliance with the recommendations of the committee appointed by the Board of Supervisors to investigate and devise a plan of continuous maintenance, the Board of Supervisors, on the eighteenth day of January, 1912, passed a resolution ordering the County Surveyor to proceed to maintain the improved roads in the best possible condition with the funds available, to make monthly reports as to expenditures of funds and the progress of the work, and to render a Semi-Annual Report on the first Monday of January and July of each year.

In compliance with the order, I have proceeded in accordance with the aforesaid resolution, organized a Highway Maintenance Department, with Assistant Engineer to have direct supervision of the work in the field, and one Accountant in the office to keep an accurate system of accounts, and thereby enable you to determine the cost of the various classes of work on the different roads.

The Department has acquired a limited amount of equipment with which to carry on the work, some of which has been obtained by purchase, and some by donation by the Board of Supervisors and the Highway Commission.

Owing to the lack of funds, we have not been able to establish the auto-truck patrol or a one-man patrol for any portion of the road as yet, but hope to be able to do so within the present fiscal year.

The following is the FINANCIAL STATEMENT of the funds expended by the Highway Maintenance Department:

STATEMENT.

Tax Levy	\$ 23,813.30	Tax Apportionment:	
		1st Installment	\$ 17,122.58
		2nd Installment	5,584.75
		Tax Delinquency	105.97
	<u>\$ 23,813.30</u>		<u>\$ 23,813.30</u>
Amount available in Highway Maintenance Fund by Apportionment	\$ 23,707.33	Claims allowed by Board of Supervisors from the Highway Maintenance	\$ 23,571.14
Receipts: Labor and Material Furnished Private Parties	200.00	Balance in Highway Maintenance Fund, July 1, 1912	336.19
	<u>\$ 23,907.33</u>		<u>\$ 23,907.33</u>
		Davis & Telegraph Rd.....	\$ 137.51
		Object Lesson Rd.....	24.62
		Homestead Road a/c	
		Cy Moreing	125.00
		Manteca-Ripon Road	
		a/c S. N. Cross.....	15.00
		Balance on Hand.....	336.19
	<u>\$ 23,907.33</u>		<u>\$ 23,907.33</u>

Amounts expended from the Highway Maintenance Fund on roads improved from funds other than the Highway Improvement Fund:

Bethany Road	\$ 20.93
Garwood Ferry Bridge Road.....	20.01
Sharp's Lane Road.....	347.13
Object Lesson Road.....	24.62
Davis & Telegraph Road	137.51
	<hr/>
	\$550.20

The amounts above quoted on the Bethany Road, Garwood Ferry Bridge Road, and the Object Lesson Road represent the proportion of the overhead expense (General Expense, Repairs to Equipment, Supplies to Equipment, and Auto Expense), which is not directly chargeable to any particular road, and which must be charged to the various roads in proportion to their mileage.

The amounts noted for the Sharp's Lane Road and the Davis and Telegraph Roads represent, in addition to the overhead expense above noted \$287.00 expended on the Sharp's Lane Road for labor and material, and \$77.53 expended on the Davis and Telegraph Roads for material.

The Act under which the Highway Maintenance Fund was created, said act being approved May 1, 1911, and found on page 1391, Chapter 709, in the Statutes and Amendments to the Codes of California for the Extra Session 1910 and 1911, requires that **"The money derived from the maintenance Tax must be applied solely to the maintenance of the County Highways improved under a bond issue to cover the whole County."** As the above mentioned roads were not improved under a bond issue, the Highway Maintenance Department should be reimbursed for the total amount expended on these roads.

We find it impossible, in our system of accounting, to keep a separate account of the overhead expenses on the roads improved from funds other than the Highway Improvement Fund. The only feasible way being to distribute the total expenses for all improved roads semi-annually, in proportion to their mileage.

Amounts expended from funds other than the Highway Maintenance Fund on roads improved by the Highway Improvement Fund:

LOWER SACRAMENTO.

From Calaveras Road District Fund.....	\$ 98.57
From Liberty Road District Fund.....	119.65
From Elkhorn Road District Fund	369.18
	<hr/>
Total	\$587.40

The amounts above noted being expended on the Lower Sacramento Road have been expended from the road district funds noted, on the sanction and approval of the Supervisors in whose district the work has been done.

All money spent by the Highway Maintenance Department from the various road districts funds has been spent only in the district for which it was apportioned.

LOWER SACRAMENTO ROAD.

The Lower Sacramento Road has required very little maintenance work. The work done has consisted of honing in the earth shoulders at the sides of the asphalt macadam pavement, and maintaining them on a level with the surface of the pavement. All bad places in the pavement have been repaired, and all dangerous curves have been widened and super-elevated so as to make an easy turn.

The cost of maintenance, excluding the amount expended in widening out the curves has been \$32.92 per mile. The total cost of maintenance including all expenditures has been \$92.18 per mile.

CHEROKEE LANE ROAD.

The Cherokee Lane Road from the city limits of Stockton to the Acampo-Lockeford Road, a distance of 14.79 miles, has cost \$87.13 per mile to maintain. The maintenance work has consisted mainly of covering the oil, which has come to the surface with sand and screening. Patching work has been done upon this road from the Lodi-Lockeford Road north to the Acampo-Lockeford Road.

That portion of the road from East Street to Hubb's Corner, which is an asphalt macadam pavement, has required no maintenance.

WATERLOO ROAD.

The Waterloo Road from Hubb's Corner to the Harmony Grove School House, a distance of 10.77 miles, has cost on an average of \$150.23 per mile, to maintain. The maintenance work upon this road has consisted entirely of placing sand and screenings upon the oil which has come to the surface.

LINDEN ROAD.

The Linden Road from the city limits of Stockton to the Jack Tone Road, a distance of 7.34 miles, has cost on an average of \$171.70 per mile to maintain. The maintenance work upon this road has consisted entirely of placing sand, rock and screenings upon the oil which has come to the surface.

COPPEROPOLIS ROAD.

The Copperopolis Road from the city limits of Stockton easterly .55 miles has cost on an average of \$13.90 per mile to maintain. The only expense incurred upon this road is that proportion of the overhead expense which is chargeable to the road.

HOGAN ROAD.

The Hogan Road from its intersection with the French Camp Road, south of the Manteca, a distance of 4.32 miles, has cost on an average of \$223.64 per mile to maintain. The maintenance work on this road has consisted of oiling the earth shoulders at the side of the pavement, repairing and patching all depressions and spots where the bitumenized wearing surface has been worn out.

FRENCH CAMP ROAD.

The French Camp Road from the city limits of Stockton to the Roberts Island Road, a distance of .89 miles, and from the town of French Camp, southeasterly to its intersection with the Hogan Road, a distance of 3.34 miles, has cost on an average of \$172.35 per mile to maintain. The first portion of the road above noted is asphalt pavement, and has cost nothing to maintain outside of the overhead expense. That portion of French Camp to the Hogan Road has been oiled and repaired with our patching outfit.

NORTH STOCKTON ROAD.

The North Stockton Road, being commonly known as North California Street from North Street northerly to Castle Street, a distance of .51 miles, has cost on an average of \$41.60 per mile to maintain. The maintenance work on this road has consisted of placing a sheet iron grating over the culvert which crosses the street near St. Joseph's Home. The only other expense incurred upon this road is that proportion of the overhead expense chargeable to the road.

HOMESTEAD ROAD.

The Homestead Road, consisting of California Street from South Street to Eighth Street, Eighth Street from California Street to McKinley Avenue, and McKinley Avenue from Eighth Street to South Street, a total distance of 1.69 miles, has cost on an average of \$217.62 per mile to maintain. This road has been a very expensive road to maintain, owing to the large excess of oil which has come to the surface and has had to be covered with sand.

NEW HOPE ROAD.

The New Hope Road from its intersection with the Lower Sacramento Road in the town of Woodbridge westerly 2.94 miles, has cost on an average of \$19.85 per mile to maintain. The only maintenance work done upon this road has consisted of brushing screenings from the side of the pavement to the center to cover places where oil has come to the surface.

ACAMPO-LOCKEFORD ROAD.

The Acampo-Lockeford Road from its intersection with the Lower Sacramento Road easterly to the town of Lockeford, a distance of 8.71 miles, has cost on an average of \$155.54 per mile to maintain. The maintenance work done upon this road has consisted of the repair of depressions and replacing the bitumenized sealing coat where the same was worn through.

LODI-WOODBRIDGE ROAD.

The Lodi-Woodbridge Road from the city limits of Lodi to its intersection with the Lower Sacramento Road near Woodbridge, a distance of 1.67 miles, has cost on an average of \$383.08 per mile to maintain. This road has been very expensive to maintain, owing to the numerous depres-

sions which have developed in the surface of the pavement. It has been necessary to build up these depressions by degrees, which has necessitated going over the road several times with a patching outfit.

LODI-LAFAYETTE ROAD.

The Lodi-Lafayette Road from the city limits of Lodi westerly to Lafayette Hall, thence northerly two (2) miles to its intersection with the New Hope Road, a total distance of 6.07 miles, has cost on an average of \$51.12 per mile to maintain. The maintenance work on this road has consisted entirely of covering with sand and screenings, the excess oil which has come to the surface.

WEST SIDE ROAD.

The West Side Road from the Town of French Camp southerly to Thomas Thompson's Place, for a distance of 5.02 miles, and from the San Joaquin River to the County line, a distance of 15.79 miles, making a total mileage of 20.81 miles, has cost on an average of \$230.18 per mile to maintain. The road from French Camp to Thomas Thompson's Place has been given an entire new sealing coat for the full depth of the road. This particular section of the road has cost approximately \$675.00 per mile to maintain. That portion of the road from the San Joaquin River to the County Line has cost approximately \$88.00 per mile to maintain. Repair work on this section of the road has consisted entirely of placing screenings and sand upon the excess oil which has come to the surface.

MOSSDALE BRIDGE-MANTECA ROAD.

The Mossdale Bridge-Manteca Road, extending from Manteca westerly 1.96 miles, has cost on an average of \$192.58 per mile to maintain. The maintenance work on this road has consisted of repairing depressions and replacing the bitumenized sealing coat with our patching outfit.

MANTECA-RIPON ROAD.

The Manteca-Ripon Road extending from Manteca to the County Line southeasterly from Ripon for a distance of 8.02 miles, has cost on an average of \$191.87 per mile to maintain. The maintenance work done upon this road has consisted of replacing the sealing coat, and repairing depressions in the surface.

There is now in charge of the Highway Maintenance Department 114.54 miles of road improved by the Highway Commission from the Highway Improvement Fund, and 15.19 miles improved by the Board of Supervisors from other funds, making a total of 129.73 miles. The Highway Commission will undoubtedly turn over to the Maintenance Department for maintenance within the present fiscal year, the remaining 115 miles of the system which are now in their charge. This will give us a total mileage to care for of 254.73 miles. It will be necessary, within the present fiscal

year, for the Highway Maintenance Department to increase their present equipment in order to care for this increased mileage.

The County Prisoners have been working upon the improved Highway under our direction since February 13, 1912. There has been spent the following hours of labor on the various roads:

French Camp Road	879 hours at 31¼ per hr.....	\$274.68
Cherokee Lane Road	1152½ hours at 31¼ per hr.....	360.16
Homestead Road	655½ hours at 31¼ per hr.....	204.85
Linden Road	940 hours at 31¼ per hr.....	293.75
Lower Sacramento Road	54 hours at 31¼ per hr.....	16.87
Waterloo Road	667½ hours at 31¼ per hr.....	208.60
Davis & Telegraph Roads	85 hours at 31¼ per hr.....	26.56
Copperopolis Road	390 hours at 31¼ per hr.....	121.87
Total.....		\$1507.34

The above table shows what this labor has been worth to the county on each of the roads worked upon by the county prisoners. In the total of 52½ days worked upon by them, there has been a saving to the county of approximately \$28.70 per day.

We have not as yet had charge of the maintenance of these roads for the period of one year and so cannot give a complete estimate of what in our judgment will be sufficient to maintain them in a satisfactory manner.

From our experience, we have found that certain roads over adobe soils will require a great deal more attention and care than the roads over sandy soil, some places requiring additional material in order to make a satisfactory road.

Respectfully Submitted,
Highway Maintenance Department.

Sept. 5, 1912.

Mr. R. M. Morton,
San Joaquin Building,
Stockton, Cal.

Dear Sir:

We recently received a copy of the semi-annual report of your highway commission relative to highway maintenance, and if not too much trouble we would like very much to know the kind of pavement which was laid on the various highways therein mentioned.

Requesting an early reply and thanking you in advance for same, we remain,

Yours truly,
WM. J. LOCKE,
Ast. Sec'y, League of California Municipalities.

League of California Municipalities,
Pacific Building,
San Francisco, Calif.

Dear Sirs:

Your letter of September 5th, addressed to R. M. Morton, Engineer of the Highway Commission, Stockton, California, has been referred to us for answering.

In regard to the various types of pavement laid on the Highways mentioned in our report, we beg to inform you at this time that it will be impossible for us to give you a detail account of the construction and types of pavements used on the various roads, without sending you the specifications for the same. However, we will state that the types of pavement used on the various roads are as follows:

Lower Sacramento Road	Asphalt Macadam
Cherokee Lane Road	Oil Macadam
Waterloo Road	Water bound macadam, oiled after one year's service.
Linden Road	Oil Macadam
Copperopolis Road	Asphalt Macadam
Hogan Road	Oiled Macadam
French Camp Road	Asphalt Macadam (.89 miles)
	Oil Macadam (3.34 miles)
North Stockton Road	Asphalt Macadam
Homestead Road	Oiled Macadam (gravel base)
New Hope Road	Oiled Macadam
Acampo-Lockeford Road	Water bound macadam, oiled after one year's service.
Lodi-Woodbridge Road	Water bound macadam, oiled after one year's service.
Lodi-Lafayette Road	Oiled Macadam
West Side Road	Oiled Macadam
Mossdale Bridge-Manteca	Oiled Macadam
Manteca-Ripon	Oiled Macadam

Trusting this information will be sufficient, we remain,

Yours respectfully,

HIGHWAY MAINTENANCE DEPT.

By W. B. Hogan,

AUSPICES OF
CALIFORNIA STATE BOARD OF HEALTH

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AT THE
UNIVERSITY OF CALIFORNIA, BERKELEY, CAL.
September 23rd to 28th, 1912

MONDAY, SEPTEMBER 23, 1912

2 o'clock P. M.

Meeting at New Chemistry Lecture Auditorium.

Entire Body

Opening Address.....HON. A. E. DODSON, President
President of the City Council of San Diego.

Address of Welcome.....HON. J. STITT WILSON
Mayor of Berkeley.

Welcome to the University.....BENJAMIN IDE WHEELER
President of the University of California.

Response.....BEVERLY L. HODGHEAD
Junior Past President of the League.

Report of Secretary.

Appointment of the Auditing Committee.

Our Greatest Municipal Achievement Since Last Meeting.

The roll of cities will be read and a representative present called upon to tell the convention of the biggest thing undertaken in his town during the past year.

8 o'clock P. M.

Informal reception at the Hearst Memorial Mining Building and the Exposition tent by the city officials of Berkeley and members of the various civic bodies of that city.

NOTE—All meetings are open to the general public.

REQUEST

In consideration of the courtesies and support extended to the exposition, our members, guests and exhibitors, in traveling to and from the University grounds, are requested to patronize the

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PROGRAM—Continued

TUESDAY, SEPTEMBER 24, 1912.

9 o'clock A. M.

DEPARTMENT OF ENGINEERS, COUNCILMEN AND STREET SUPERINTENDENTS.

Meeting in the Hearst Memorial Mining Building.

CHRIS P. JENSEN, City Engineer of Fresno, President.

Light Traffic Pavements—The discussion will be opened with an address by
WM. J. BACCUS, Commissioner of Streets, of the City of Oakland.

Open Discussion.

Sewage Purification by Dilution.....H. S. GRISWOLD
Instructor of Sanitary Engineering, University of California.

TUESDAY MORNING, SEPTEMBER 24, 1912.

9 o'clock A. M.

DEPARTMENT OF ATTORNEYS.

The attorneys will meet every morning during the session in the Boalt Hall of Law.

JOHN F. DAVIS, City Attorney of Burlingame, President.

The One Hundred Dollar Limitation in Cities of the Fifth and
Sixth Class CON H. GOLDBERG
City Attorney of Willits.

The Legitimate Uses of a Public Park.....H. G. JORGENSEN
City Attorney of Monterey.

Liens by OrdinanceCHARLES N. KIRKBRIDE
City Attorney of San Mateo.

DEPARTMENT OF CLERKS, AUDITORS AND ASSESSORS.

D. D. KELLOGG, Auditor and Assessor of Pasadena, President.

Meeting in the Hearst Memorial Mining Building.

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THE COLUMBARIUM

Is one of the finest in the world for the reception of ashes. The building is as beautiful as money can make it, and contains thousands of niches for the benefit of those who wish to have a **PERMANENT** resting place for the ashes of their dead, amid appropriate surroundings.

CREMATION

Mr. W. W. Ferrier, editor of the **Pacific** (Congregational) magazine, has kindly given permission to copy from his editorial in the issue of Sept. 4, 1912, the following:

"The decision of the San Francisco board of supervisors to demand the removal of all the bodies of the dead in the old cemeteries ought to turn people everywhere to an earnest consideration of the practice of cremation. The **Pacific** has favored it for many years. . . . It is to be hoped that all who have laid away the bodies of friends and loved ones in those cemeteries will earnestly consider the desirableness of cremating them instead of interring them elsewhere. . . . In 1890 there were 372 cremations in the United States; in 1908 there were 3462. The crematory of the **Oakland Cremation Association**, first used in June, 1902, had 312 incinerations in 1903 and 931 in 1911."

The entire cost of incinerating an adult is \$30; a child from 5 to 15 years of age, \$15; infants under 5 years, \$10. These prices include use of **Chapel**, organ, services of organist, and a copper receptacle for the ashes.

SPECIAL RATES FOR CREMATING DISINTERMENTS may be had on application at the office or by telephone.

PROGRAM—Continued

TUESDAY MORNING, SEPTEMBER 24, 1912.

9 o'clock A. M.

Report of the Committee on Uniform Accounting By JOHN J. McMAHON, of Lodi, Chairman.

The committee will submit a system of accounting now in use in one of the small municipalities in Northern California in such a manner that each feature may be taken up and discussed seriatim.

BEFORE THE GENERAL BODY.

Meeting in the Lecture Hall of the Chemistry Building.

2 o'clock P. M.

A. E. DODSON, President of the City Council of San Diego, Presiding.

Progress in Municipal Government HON. GEORGE W. STONE
Mayor of Santa Cruz.

A Comparison of the Methods of Efficiency of Modern European
and American City Governments..... BEVERLY L. HODGHEAD
Former Mayor of Berkeley and Past President of the League of California
Municipalities.

College Training of Municipal Experts..... PROF. THOS. H. REED
Department of Political Science, University of California.

Efficiency..... CHARLES A. MURDOCK
Member San Francisco Board of Supervisors.

Should the California Municipalities Surrender their Powers of
Rate Fixing to the Railroad Commission..... MAX THELEN
Attorney and Member of the Railroad Commission.

TUESDAY EVENING.

8 o'clock P. M.

Before the entire body, meeting in the Harmon Gymnasium.

(The general public are especially invited to this meeting.)

The Social Evil..... HON. CLAYTON HERRINGTON
Of the Department of Justice, U. S. Government.

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PROGRAM—Continued

WEDNESDAY MORNING, SEPTEMBER 25, 1912.

9 o'clock A. M.

DEPARTMENT OF ENGINEERS, COUNCILMEN AND STREET SUPERINTENDENTS.

Meeting in the Hearst Memorial Mining Building.

Light Traffic Pavements—Continued.

Road Construction.....CLARENCE E. BAYLEY
City Engineer of Pomona.

The Imhoff Tank at Winters.....F. H. TIBBETTS

The Electrical Fire Hazard.....C. W. MITCHELL
Inspecting Engineer, Board of Fire Underwriters of the Pacific.

The Santa Barbara Tunnel.....LEE M. HYDE
Supervising Engineer Santa Barbara Water Works.

WEDNESDAY MORNING, SEPTEMBER 25, 1912.

9 o'clock A. M.

DEPARTMENT OF ATTORNEYS.

Meeting in the Boalt Hall of Law.

The reception and consideration of resolutions.

Attorneys and other city officials desiring to offer suggestions for amending our present laws are requested to present their idea in the form of a resolution. The following have already been submitted.

RESOLVED: That Section 777 and 874 of the Municipal Corporation Bill should be so amended as to permit an unlimited expenditure of public money in cases of emergency, if approved by an unanimous vote of the council.

RESOLVED: That the municipal bond law should be so amended as to exclude from the 15 per cent debt limit any debt incurred for municipally owned public utilities which, in addition to paying running expenses, bring in sufficient revenue to cover the interest on such debt.

RESOLVED: That Sec. 18 of Article XI of the Constitution be so amended as to exclude municipal bonds issued in lieu of assessments for local improvements.

RESOLVED: That the Improvement Act of 1911 should be so amended as to provide that the Notice of Improvement contain a statement of the time and place for hearing protests.

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PROGRAM—Continued

WEDNESDAY MORNING, SEPTEMBER 25, 1912.

9 o'clock A. M.

DEPARTMENT OF CLERKS, AUDITORS AND ASSESSORS.

Meeting in the Hearst Memorial Mining Building.

Equitable Assessing, including a discussion of the Somers' system,

.....JOHN GINTY
Assessor of San Francisco.

Pasadena's System of Physical and Financial Accounting and

Reporting.....D. D. KELLOGG
Auditor and Assessor of Pasadena.

WEDNESDAY AFTERNOON, SEPTEMBER 25, 1912.

2 o'clock P. M.

General Body.

Meeting in the Lecture Hall of the Chemistry Building.

Report of Committee on Participation in Panama-Pacific Exposition

.....ERIC LANGE, Chairman

Improvements in Public Health Administration in California,

..... HAROLD FARNSWORTH GRAY
Specialist in Sanitation.

Consideration of the following resolution:

RESOLVED: That the city officials of California be and they are hereby requested to do all in their power to secure the adoption of the Constitutional Amendment providing for "Home Rule In Taxation."

Leader for the Affirmative.....HON. J. STITT WILSON
Mayor of Berkeley.

WEDNESDAY EVENING, SEPTEMBER 25, 1912.

8 o'clock P. M.

Entire Body.

Meeting in Hearst Hall.

(The general public are cordially invited to attend this lecture.)

The West as World Beaters in Engineering..... PROF. ROBERT SIBLEY
Department of Mechanical Engineering, University of California.

Illustrated with stereopticon views.

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PROGRAM—Continued

THURSDAY MORNING, SEPTEMBER 26, 1912.

9 o'clock A. M.

DEPARTMENT OF ENGINEERS, COUNCILMEN AND STREET SUPERINTENDENTS.

Meeting in the Hearst Memorial Mining Building.

Garbage Incinerators.....J. J. JESSUP
City Engineer of Berkeley.

Illustrated with stereopticon views.

Unfinished business.

Election of Officers.

General Body.

Meeting in the Hearst Memorial Mining Building.

9 o'clock A. M.

Simplification of Methods and Processes in Municipal Affairs..LORIN A. HANDLEY
City Clerk of Los Angeles.

The Purchase of Supplies.....ADOLPH KOSHLAND
Supervisor of San Francisco.

Budgets.....WILLIAM DOLGE
Expert Accountant of the San Francisco Board of Supervisors.

Franchises.....HAINES W. REED
Member of the City Council of Los Angeles.

The Value of Municipal Reference Libraries.....CHARLES S. GREENE
Librarian, Oakland Free Library.

More Efficiency in the Health Department of Small Cities....
.....DR. FRED. WM. BROWNING
Chairman of the Committee on Standard Methods of Public Health Admin-
istration of the California State Board of Health.

THURSDAY MORNING, SEPTEMBER 26, 1912.

9 o'clock A. M.

ATTORNEYS MEETING WITH THE CLERKS, AUDITORS AND ASSESSORS

Meeting in the Boalt Hall of Law.

Consideration of a model ordinance for small cities relating to the assessment,
levy and collection of taxes.

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PROGRAM—Continued

THURSDAY MORNING, SEPTEMBER 26, 1912.

10:30 o'clock A. M.

DEPARTMENT OF ATTORNEYS.

Meeting in the Boalt Hall of Law.

Special Charters for Small Cities.....C. R. HOLTON
City Attorney of Whittier.

THURSDAY MORNING, SEPTEMBER 26, 1912.

10:30 o'clock A. M.

DEPARTMENT OF CLERKS, AUDITORS AND ASSESSORS.

Meeting in the Hearst Memorial Mining Building.

An Exhibit of the Municipal Accounting System of Berkeley....
.....Explained by M. C. HANSCOM
Auditor of Berkeley.

The Value of Budgets for Small Cities.....WM. DOLGE
Unfinished Business.

Entire Body.

At 11:45 o'clock A. M., Thursday, September 26, the entire body will take special cars from the Telegraph Avenue entrance to the University grounds and proceed to Lincoln Park, Alameda, where lunch will be served. An open air program, interspersed with folk dancing and other entertainment by the school children of Alameda, will proceed as follows:

Excess Condemnation.....PERCY V. LONG
Attorney of San Francisco.

Suggestions for Amending the Law for Exercising the Initiative,
Referendum and Recall.....WM. J. LOCKE
Editor Pacific Municipalities.

The Initiative and Referendum on Ordinances Relating to
Technical Subjects.....DR. L. M. POWERS
Health Commissioner of Los Angeles.

Modern System for the Illumination of City Streets....PROFESSOR C. L. CORY

3 o'clock P. M.

Inspection of the Municipal Achievements of the City of Alameda

5:30 o'clock P. M.

Special cars back to Berkeley.

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San Francisco

PROGRAM—Continued

THURSDAY EVENING, SEPTEMBER 26, 1912.

8 o'clock P. M.

DEPARTMENT OF ATTORNEYS.

Meeting in the Boalt Hall of Law.

Unfinished Business.

New Business.

Election of Officers.

THURSDAY EVENING, SEPTEMBER 26, 1912.

8 o'clock P. M.

DEPARTMENT OF CLERKS, AUDITORS AND ASSESSORS.

Meeting in the Hearst Memorial Mining Building.

Unfinished Business.

New Business.

Election of Officers.

THURSDAY EVENING, SEPTEMBER 26, 1912.

8 o'clock P. M.

Entire Body.

Meeting in the Lecture Hall of the Chemistry Building.

Pure Food.....PROF. M. E. JAFFA, M. S.
Of the State Food and Drug Laboratory.

Illustrated with stereopticon views.

FRIDAY MORNING, SEPTEMBER 27, 1912.

9 o'clock A. M.

Entire Body.

Meeting in the Harmon Gymnasium.

The Preferential System of Voting..... WALLACE T. RUTHERFORD
City Attorney of Napa.

Selection of the Next Place of Meeting.

Election of Officers.

Unfinished Business.

New Business.

At 11 o'clock A. M. there will be a joint meeting in the Harmon Gymnasium with the faculty and students of the University. There will be a short address by President Wheeler, and Hon. George W. Stone, Mayor of Santa Cruz, will tell what the League has accomplished for the cities and towns of California.

PROGRAM Continued

FRIDAY NOON, SEPTEMBER 27, 1912.

Entire Body.

Luncheon under the oaks, as guests of the officials and civic bodies of the City of Berkeley. Toward the close of the luncheon the following topic will be discussed:

Publicity of Municipal Affairs HON. THOMAS MONAHAN, Mayor of San Jose
and H. A. MASON, Secretary of the League.

FRIDAY, SEPTEMBER 27, 1912.

2 o'clock P. M.

Entire Body.

Inspection of the public buildings and street pavements of the cities of Berkeley and Oakland.

FRIDAY EVENING, SEPTEMBER 27, 1912.

8 o'clock P. M.

Entire Body.

Theater Party at the Orpheum Theater in Oakland as guests of the city officials and civic bodies of the City of Oakland.

SATURDAY, SEPTEMBER 28, 1912.

Inspection of the street pavements and other municipal improvements of the City of Richmond, including a visit to the Road Oil and Asphalt Plant of the Standard Oil Company.

QUESTION BOX.

WHAT DO YOU WANT TO KNOW?

All municipalities are invited to submit questions to the convention. Address all communications to the "Question Box" or have them put in the box which will be on the grounds. The source of the inquiry will not be disclosed if requested.

PROGRAM—Continued

DEMONSTRATION TESTS FOR THE ENGINEERS, COUNCILMEN AND STREET SUPERINTENDENTS.

DEMONSTRATION TESTS.

Meeting—League of California Municipalities.

Berkeley, September, 1912.

Visiting members of the League of California Municipalities and all others who are interested in the testing of structural materials are invited to witness a series of typical tests at the Civil Engineering Testing Laboratories, University of California.

The object of this series is to exhibit approved methods of making tests. The program is under the direction of the Civil Engineering Department, University of California, with the co-operation of testing engineers resident in the San Francisco Bay region.

Moving pictures associated with the general subject of hygiene will be shown each day during the convention through the kindness of the West Disinfecting Company. The pictures will deal with such subjects as poor housing conditions, impure milk, the fly pest, etc., and will be open to the general public free of charge.

PROGRAM

DEMONSTRATION TESTS MEETING

League of California Municipalities

TUESDAY, SEPTEMBER 24, 1912.

1:30 to 5 P. M.

DETAIL OUTLINE.

CEMENT TESTS.

- | | |
|----------------------------|--------------------------------------|
| 1. Specific Gravity Tests. | 5. Normal Consistency Determination. |
| 2. Fineness Test. | 6. Moulding Briquettes. |
| 3. Making of Pats. | 7. Tensile Strength Tests. |
| 4. Boiling Test. | 8. Standard Sieves. |

SAND TESTS.

- | | |
|------------------------|------------------------|
| 1. Specific Gravity. | 3. Sieve Analysis. |
| 2. Void Determination. | 4. Silt Determination. |

CONCRETE ROCK TESTS.

- | | |
|------------------------|--------------------|
| 1. Specific Gravity. | 3. Sieve Analysis. |
| 2. Void Determination. | |

These tests will be accompanied with a short paper entitled:
Comparative Strength of Pavement Bases.....WM. B. GESTER

WEDNESDAY, SEPTEMBER 25, 1912.

1:30 to 5 P. M.

ROAD MATERIAL TESTS.

MACADAM.

- | | |
|-----------------|----------------------|
| 1. Abrasion. | 4. Absorption. |
| 2. Cementation. | 5. Specific Gravity. |
| 3. Toughness. | |

ASPHALT.

- | | |
|--------------------------------|---------------------|
| 1. Penetration. | 3. Loss on Heating. |
| 2. Percentage Soluble Bitumen. | |

STEEL TESTS.

- | | |
|-----------------------------|-----------------------|
| 1. Commercial Tension Test. | 2. Cold Bending Test. |
|-----------------------------|-----------------------|

CONCRETE TESTS.

- | | |
|---------------------------------|---------------|
| 1. Commercial Compression Test. | |
| a. Cubes. | b. Cylinders. |
| 2. Elastic Compression Test. | |

BRICK TESTS.

- | | |
|----------------------|---------------------|
| 1. Transverse Test. | 3. Absorption Test. |
| 2. Compression Test. | 4. Fire Test. |

NOTE—Street Superintendents are specially urged to witness these demonstration tests. The University.

PROGRAM
FOR THE
FOURTH ANNUAL CONFERENCE
OF
State, County and Municipal
Health Officials

Held in Conjunction with the League of California Municipalities.

September 23 to 28, inclusive, Entomology Building, University of California,
Berkeley.

RULES GOVERNING PAPERS AND DISCUSSIONS—Speakers will be limited to 15 minutes, and those taking part in the discussion will be limited to 5 minutes. The total time devoted to the discussion of any one subject will be limited to 30 minutes.

MONDAY, SEPTEMBER 23, 1912.

Registration Day. Opening of Public Welfare Exposition.

TUESDAY, SEPTEMBER 24, 1912.

9:45 A. M.—Roll Call.

- 10:00 Opening address. Dr. Martin Regensburger, President of the California State Board of Health.
- 10:30 Advances in Public Health Education. Dr. George F. Reinhardt, Professor of Hygiene, University of California.
Discussion.
- 11:00 The Bearing of Recent Court Decisions on the Work of the Food and Drugs Laboratory. Professor M. E. Jaffa, Director of the Bureau of Food and Drugs of the California State Board of Health.
Discussion.
- 11:30 New Functions of the State Hygienic Laboratory. Dr. W. A. Sawyer, Director of the Bureau of the Hygienic Laboratory of the California State Board of Health.
Discussion.

P. M.

- 1:30 Certification of Milk. Dr. T. C. McCleave, President of the California Association of Medical Milk Commissions.
- 2:00 Educating the Milk Man. F. H. McNair, D. V. M., Milk Inspector, City of Berkeley.
Discussion on milk, opened by Dr. Charles R. Blake, Health Officer of Richmond.

The Outdoor Privy Is Dangerous

Numerous Boards of Health have condemned the uncomfortable, unsanitary outdoor privy.

Physicians have time and again referred to the excreta from outdoor privies polluting drinking water, and thus spread typhoid; while the danger from disease is further intensified by flies that breed there and come into the home.

Then there are the foul odors in warm weather; the cold and discomfort in cold, rainy weather, and the battling through the elements at such a time.

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PROGRAM—Continued

- 2:45 Demonstration at State Food and Drugs Laboratory. Mr. E. J. Lea, Chemist.
- 3:30 Demonstration at the State Hygienic Laboratory. Dr. J. C. Geiger, Chief Bacteriologist.
- 4:15 Demonstration of the Certified Dairy of the University of California. C. L. Roadhouse, D. V. M., Instructor in Veterinary Science and Manager of the Dairy.
- 4:45 Demonstration of the Infirmary of the University of California. Albert M. Meads, M. D., Infirmary Physician.
- 8:00 The Suppression of the White Slave Traffic and the Control of Venereal Diseases. Hon. Clayton Herrington, Bureau of Investigation, Customs House, San Francisco.
- Joint meeting with the League of California Municipalities.
-

WEDNESDAY, SEPTEMBER 25, 1912.

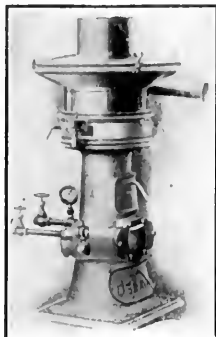
A. M.

- 9:00 The Health Officer's Responsibility in a Case of Diphtheria. Dr. R. G. Brodrick, Health Officer of San Francisco.
- Discussion. Dr. George H. Aiken, Health Officer of Fresno.
- 9:30 Sanitaria and Camps for the Tuberculous. Dr. Robert A. Peers, of Colfax.
- 9:45 Progress of the State and National Tuberculosis Societies. Dr. George E. Tucker, Secretary of the California Tuberculosis Society.
- Discussion on Tuberculosis opened by Dr. F. W. Browning, Health Officer of Eden Township, Hayward.
- 10:15 Visit to the Cutter Analytic Laboratory. Demonstration of the methods to 12 of manufacture of biological products.

P. M.

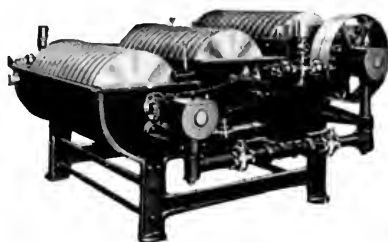
- 1:30 The Epidemiology of Typhoid. Dr. James H. Parkinson, Member of the California State Board of Health.
- Discussion on Typhoid opened by Dr. C. A. Poage, Health Officer of Colusa County.
- 2:15 Acute Poliomyelitis in California. Dr. F. F. Gundrum, Northern Branch of the State Hygienic Laboratory, Sacramento.
- Discussion opened by Mr. H. C. Jenkins, Health Officer of Palo Alto, California.
- 2:45 The Epidemiology and Control of Scarlet Fever, Measles and Chicken Pox. Dr. William Simpson, Health Officer of Santa Clara County.
- Discussion opened by Dr. Mary R. Butin, Health Officer of Madera County.

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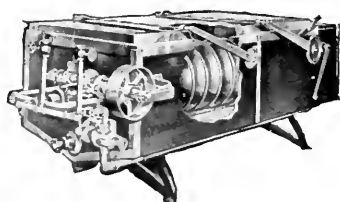
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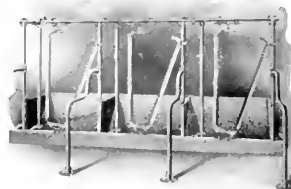
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San Francisco

1016 Western Ave.
Seattle, Wash.

PROGRAM—Continued

- 3:15 The Results of Personal Experiences in Controlling Smallpox. Dr. Arthur O'Neill, Resident Physician Contagious Disease Hospital, San Francisco.
- 3:45 Successful Methods of Attack on Malaria. Mr. W. B. Herms, Assistant Professor of Applied Parasitology, University of California.
- 4:15 Disinfection and Vaccination in the Control of Typhoid Fever. Dr. John G. Fitzgerald, Assistant Professor of Bacteriology, University of California.
-

THURSDAY, SEPTEMBER 26, 1912.

A. M.

- 9:00 Hookworm Disease in California. Dr. Herbert Gunn, City Physician of San Francisco.
- Discussion opened by Dr. E. E. Endicott, Health Officer of Amador County.
- 9:45 The Rabies Epizootic in San Francisco. Dr. W. H. Kellogg, Director of Laboratories, San Francisco Board of Health.
- Discussion opened by Dr. J. J. Benton, Health Officer of Berkeley.
- 10:30 The Steps Necessary for the Complete Eradication of Plague from California. Passed Assistant Surgeon J. D. Long, U. S. P. H. & M. H. Service.
- Discussion opened by Dr. Martin Regensburger, President of the California State Board of Health.
- 11:15 The Driving of Venereal Diseases from the Large Cities into Unprotected Communities. Dr. Martin Regensburger, President of the California State Board of Health.
- Discussion opened by Dr. George E. Tucker, Health Officer of Riverside County.
- 11:30 Isolation vs. Quarantine. Dr. Wm. K. Lindsay, Health Officer of Sacramento.
- Discussion opened by Dr. M. W. Glover, Passed Assistant Surgeon in Command of San Francisco Quarantine Station.

P. M.

- 1:30 The Commercial Exploitation of Disinfectants and Fumigants. Dr. Wilbur A. Sawyer, Director of the Bureau of the Hygienic Laboratory of the California State Board of Health.
- Discussion opened by Dr. George E. Tucker, Health Officer of Riverside.
- 2:00 Safety Protection of the Laborer. Mr. Aaron L. Sapiro, Secretary of the Industrial Accident Board of California.
- Discussion opened by Dr. R. G. Brodrick, Health Officer of San Francisco.

PROGRAM Continued

2:45 Housing Problems. Miss Jessica B. Peixotto^h, Assistant Professor of Sociology, University of California.

Discussion opened by Miss Alice P. Griffiths, Secretary of the San Francisco Housing Association.

3:15 School Inspection. Miss A. F. Brown, School Director of Oakland.

3:45 Outdoor Schools. Dr. N. K. Foster, Medical Director of Schools, Oakland.

8:00 The Consumer and the Food and Drugs Acts. Professor M. E. Jaffa, Director of the Bureau of the Food and Drugs Laboratory of the California State Board of Health.

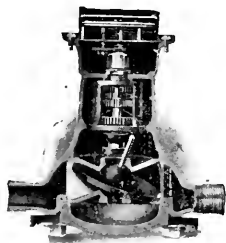
FRIDAY, SEPTEMBER 27, 1912.

9:00 A. M. to 5 P. M.

Trip by boat to Angel Island Quarantine and Immigration Stations, and other points of hygienic interest on San Francisco Bay. Full details to be announced Thursday afternoon.

SATURDAY, SEPTEMBER 28, 1912.

Tour of inspection of Bay Cities with the Municipal League.



TRIDENT DISC

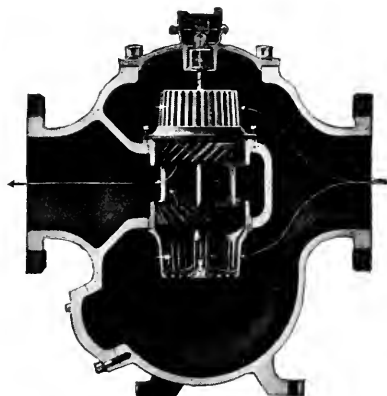
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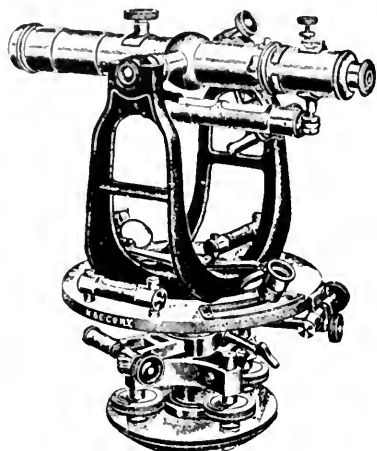
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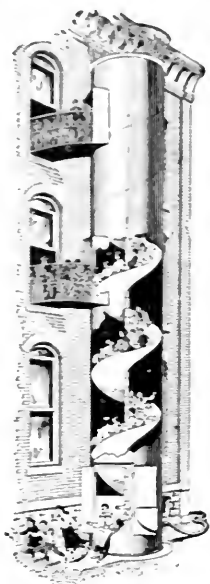
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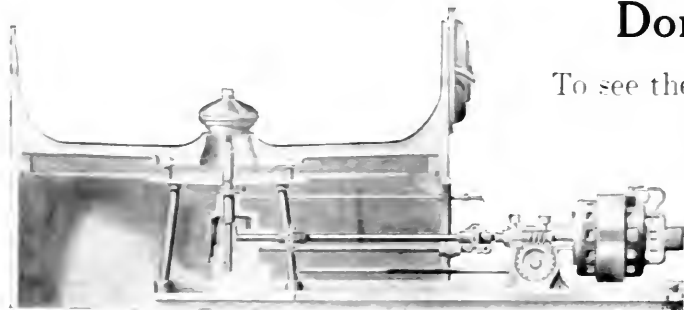
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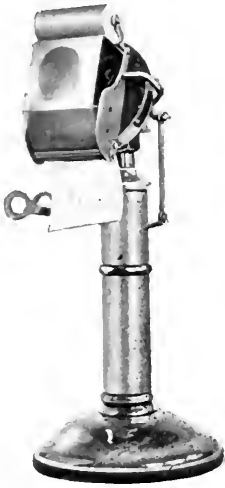
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They are invaluable for the economical storage of water and are fast replacing the ancient wooden tanks.

The question of superiority of steel over wood for building tanks is the same one which applies to bridges, buildings and many other structures. They all were formerly built of wood and now are being built almost entirely of steel. The principal advantages are the greater durability and strength of the material; also the steel tank remains absolutely watertight when properly caulked, while the wooden affair is continually giving trouble by leaking. There is no danger of the steel tank bursting with its attendant damage to adjoining property and its life is easily four to five times that of the wooden tank.

From an artistic as well as an economical standpoint of view, the hemispherical bottom steel tank is an addition to any community.

We make a specialty of designing steel tanks to meet unusual conditions and special requirements.

See Us at Our Exhibit

SHOPS: CHICAGO, ILL., AND GREENVILLE, PA.

San Francisco Office - - - 424 Sheldon Bldg.

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President

F. A. CURTISS
Secretary

The New Material for Wall Finish and Interior Decoration

'Colak'

May be applied to	WET WALLS
Requires	NO SIZING
Colors not burned by	SALTPETRE
Not affected by	ALKALI

*Flat
Wall
Paint*



*No
Lead
Used*

*Dead Flat and
Washable*

*Healthful
Sanitary*

PRODUCTS

"Colak"

Concrete paints may be applied to . . .	WET WALLS
Concrete paints stop action of . . .	SALTPETRE
Damp-proof paints are	DAMP-PROOF

PACIFIC COLAK COMPANY

Phone Sutter 2488

*Merchants National Bank Building
625 Market Street*

*SAN FRANCISCO, CAL.
Factory: East Oakland*



Going to Build?

Investigate and you'll use the California Colonial Wall Board for interior or exterior construction. Fire and sound proof and non-conductor of heat and cold.
A Home Product.

Factory, 402 Hollis Street, Emeryville

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Manufactured by the

Mound House Plaster Company

Send for Literature

"Fire's out; The Webb was on the job."

The Webb Motor Fire Apparatus

has set the standard for

SIMPLICITY, RELIABILITY, DURABILITY and SPEED

A Quick Response, is as essential as an early alarm.

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90 H. P., 6 Cylinder

600 Gallon Capacity

Speed, 60 Miles Per Hour

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Double 40 Gallon Tanks

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AMERICAN-LAFRANCE FIRE ENGINE CO.

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AMERICAN RUBBER MFG. CO.

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COTTON RUBBER LINED FIRE HOSE

"Crackerjack" "Bonanza" "Yosemite"

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Factories
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REGISTERED

For forty years we have striven to produce a superior Fire Hose, and
in our "PARAGON" Brand this is what we offer:—

- ¶The hose of longest life—twenty years continuous fire duty being a common record.
- ¶The hose of greatest strength—equal to any emergency high pressure.
- ¶The hose of greatest capacity—"Paragon" delivering more water than any other hose, due to the elimination of friction loss by our "smooth interior" weave.
- ¶The easiest hose to handle—its peculiar weave rendering it most pliable, yet strong.
- ¶The lightest hose made—the 2½" size weighing only 51½ pounds with couplings.
- ¶The most economical hose in the long run, though of slightly higher initial cost.

Eureka Fire Hose Manufacturing Company

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Visit our exhibit at the Berkeley Convention—
We may have something to offer you

VACUUM CLEANERS

*ELECTRIC PNEUMATIC
ELECTRIC SUCTION
HAND POWER VACUUM*



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Arrange for free home demonstration

Have You an Eight-Pound Diamond to Brighten Your Home? If Not

See the 1913 model of the Diamond Suction Cleaner
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FIVE NEW IMPROVEMENTS—Cast Aluminum Fan, Self-Oiling Device,
Pistol-Grip Handle, Switch Inserted in Pistol-Grip,
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Over 2700 Diamond Suction Cleaners sold on the Pacific Coast
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\$28.50

Aluminum Throughout. General Electric Motor. Five Suction Slots.

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We are placing before the people a line of valves superseding practically all other makes.

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Our Valves are of new design and for hydraulic purposes, are far superior to the old type with screw stem. They can't be crossed seated and have no stem to wring off. Impossible to stick, for the valve is so constructed that we have from 20 to 400 perches over the wings covering the ports and the entire force is applied directly on wedging system, relieving the pressure before wings are carried up and away from ports or openings through which water, oils or gases pass through. Easy to operate, one man being able to operate under heavy pressure; easy to get at all movable parts, even when under pressure all working parts thoroughly concealed and protected from harm and all parts renewable, including seats. Made for any pressure and of all kinds of metal.

We also call your attention to another, a Controller Valve, the only Controller Valve worth notice in the market. This is for regulating pressure in fire hose. Can give you any pressure and maintain it on variable pressure in hydrant.

We also call your attention to our quick opening valve for oil, water or like substances. This valve will stand open at any desired point. All of our valves are of the straight away type and have been examined, endorsed and recommended by the best experts in the country. We invite examination and criticism from practical people without fear of being contradicted in our assertion.

We further call your attention to the fact that all of our Valves are strictly a Pacific Coast product, and feel that we are entitled to have your attention, as we are firm believers in home enterprises and patronizing home industries, especially where competition is met in regard to prices, while we are certainly giving you a superior article.

All Valves are made and intended for all purposes where Valves are used. Guaranteed under all circumstances.

All information freely given and all inquiries promptly attended to.

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OAKLAND, CAL.

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Highest grade guaranteed lines of Equipment for
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ASSOCIATION OF
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A NEW SEWER PIPE
The Latest and Most Perfect
Glazed Cement Sewer Pipe

MACHINE MADE

Unaffected by Sewage
Dense and Impervious
Perfect in Section
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Absolutely Uniform
Fastest to Lay
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the largest single order for sewer pipe ever placed on the Coast

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FURNITURE MOVED, PACKED, STORED AND SHIPPED

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HIBERNIA BANK

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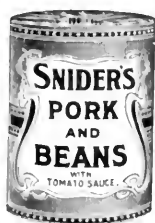
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CANNERY ON S. P. R. R.
12th-13th and PINE STS.
WEST OAKLAND

TELEPHONES
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TOMATO CATSUP, OYSTER COCKTAIL SAUCE, CHILI SAUCE, SALAD DRESSING, TOMATO SOUP, ARE GUARANTEED

PURE, WHOLESOME and Free from Artificial Color or Chemical Preservatives.

We bring about appreciable betterment in the manufacture of food products, through good example set.



All Snider Products comply with all Pure Food Laws of the World.

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IMPERIAL FOOD PRODUCTS



In White Opal Jars

MacLAREN'S IMPERIAL CHEESE

Dainty and Wholesome. Absolutely Pure.

MacLAREN'S ROQUEFORT CHEESE

A blend of Roquefort and American Cheese

MacLAREN'S CANADA STYLE NIPPY CHEESE

The Cheese with a nip

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Especially suitable for Picnics, Luncheons, Camp or Cruise

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DETROIT, MICH. TORONTO, CANADA

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THE TONIC MALT

Renews the wasted tissues and builds up the digestive system.

It will do you a World of Good.

Order a case from your Druggist or Grocer To-day

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EISNER & MENDELSON CO.

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Instantaneous Tapioca

LOOK FOR OUR OWLS ON EACH PACKAGE
They stand as a guarantee of

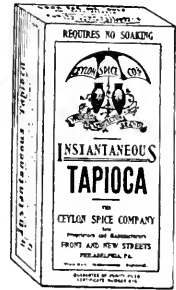
PURITY and EXCELLENCE

Instantaneous Tapioca is easily prepared and easily digested. Very nutritious and non-irritating. A most excellent food for babies. Recommended by highest medical authority. One teacupful makes a pudding for ten persons.

This is the Package Trademark "Instantaneous" Registered. Demand "Instantaneous" Tapioca and take no other.

CEYLON SPICE CO.

Philadelphia, Pa.



BRAND'S A. 1 SAUCE

Prof. L. B. Mendel, of the Sheffield Scientific School, of Yale University, writes:

NEW HAVEN, CONN., Dec. 14, 1905

G. F. Heublein & Bro.,
Hartford, Connecticut.

Gentlemen:—

I have made a chemical examination of the sample of sauce bearing the label BRAND'S INTERNATIONAL SAUCE—The A. 1—which you submitted for analysis

This product fails to show the presence of any of the commonly used preservatives, namely: *borax* or *boric acid*, *salicylic acid*, *benzoic acid* or *benzoates*. There is, further, no evidence of the use of foreign coal tar dyes in the preparation of the sauce, the color apparently, being due to the natural ingredients used in the mixture.

Respectfully yours,

LAFAYETTE B. WENDEL (signed)
Analyst.

**Brand's A. 1 Sauce has a World Wide Reputation
for Excellence
Sold by Leading Grocers**

A Secret Worth Knowing

"Where did you learn to make those delicious Pancakes?"

"If you promise to keep a secret I will tell you. Just ask your grocer for a package of

AUNT JEMIMA'S PANCAKE FLOUR

and follow directions." Aunt Jemima's Pancake Flour may also be used for making Waffles, Muffins, Gems, etc.

Made from the three staffs of life: WHEAT, CORN and RICE

THE DAVIS MILLING CO., St. Joseph, Mo.

Drink HIRES The Genuine Rootbeer

It is Pure, Healthful, Delicious

Prepared from Nature's food: roots and barks, the sap of forest trees and the flowers of the field. The same today as it has been these last forty years and no Pure Food nor State Law necessitated a change in its preparation.



Don't ask for "Root Beer," ask for "Hires."

THE CHARLES E. HIRES CO., PHILADELPHIA, PA.



Welch's *"The National Drink"* **Grape Juice**

Is nothing but the real pure Juice of the Finest Concord Grapes grown. No sugar or sweetening is added. Get the Welch Habit—for it's one that won't get you. Do more than ask for Grape Juice—ask for Welch's—and get it.

Welch Grape Juice Co., Westfield, N. Y.

THE AMERICAN BREAKFAST NATIONAL OATS

Pure Rolled White Oats

made from the finest, plumpest and most carefully selected grain. Our facilities for the preparation of Rolled Oats are of the most modern and improved construction.

National Oats are prepared under the most careful and intelligent supervision of Experts. Packed in Sanitary Dust-Proof Cartons.

A BREAKFAST FOOD OF EXCEPTIONAL MERIT

NATIONAL OATS CO.

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Salad Mustard

A most healthful and delicious table condiment for all kinds of Meats
Fish, Game, Sandwiches, etc.

Awarded Gold Medal, World's Fair, St. Louis 1904.

Prepared for Discriminating tastes by
EDDY and EDDY MFG. CO.
St. Louis, Mo.

OLD MISSION

CALIFORNIA OLIVE OIL

Awarded Gold Medals, Diplomas of Honor, Highest Awards, etc.,
at the Great Expositions of Paris, London, Buffalo, St. Louis,
Seattle, Portland, Jamestown, etc.

GUARANTEED ABSOLUTELY PURE

OLD MISSION

CALIFORNIA RIPE OLIVES

Contain all the Natural Oil of the Fruit, so are nutritious, health-
ful and delicious. Conform to all Pure Food Laws.

AKERMAN & TUFFLEY

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QUALITY SUPER-EXTRA

RUNKEL'S

Cocoas and Chocolates

RUNKEL'S BREAKFAST COCOA

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RUNKEL'S ESSENCE OF CHOCOLATE FOR FOUNTAIN USE

RUNKEL'S SUPERIOR CHOCOLATE COATINGS

RUNKEL'S COCOA LIQUOR

For over 40 years the Standard of Purity and Excellence

JOHN H. SPOHN COMPANY, Agents, San Francisco, Cal.



THE DEMAND FOR

CARNATION MILK

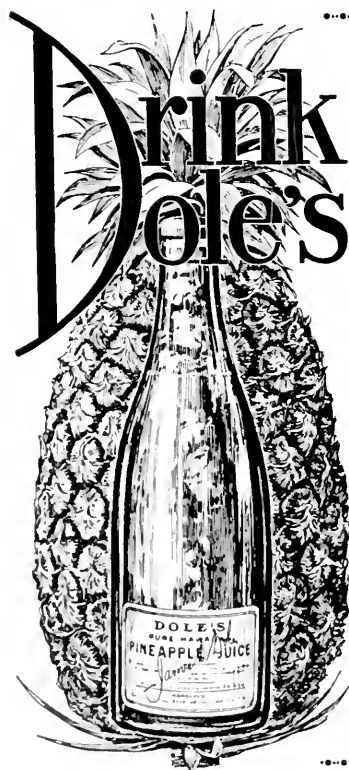
has steadily grown during the 13 years that are past, and all indications point to a still more vigorous insistence on *Carnation Quality* in the years to come.

"Flavor superior to all others or your money back."

Write for our booklet *"The Story of Carnation Quality."*

PACIFIC COAST CONDENSED MILK CO., Seattle, Wash.

JOHN H. SPOHN COMPANY, Agents, SAN FRANCISCO



Pure !
Healthful !
Refreshing !
Pleasing !

Dole's Pure Hawaiian Pineapple Juice is the absolutely pure juice of the golden ripe pineapple as grown in the Hawaiian Islands.

For descriptive matter address

**Hawaiian Pineapple
 Products Co., Ltd.**

112 Market Street

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GRANTS HYGIENIC CRACKERS

WONDERFUL

Through physicians GIMBEL BROS. of Philadelphia, having such a demand for GRANTS HYGIENIC CRACKERS, ordered and we shipped 1800 Lbs. between July 13th and August 23d (40 days).

FUNNY

HYGIENIC HEALTH FOOD CO.
Gentlemen:

TOPEKA, KANSAS, July 10, 1912.

I have been using your Hygienic Crackers for several months with such good results that I do not want to be without them. I expect to spend several weeks in Evanston, Ill., and if I cannot get them there I will have to fill my trunk with GRANTS CRACKERS and discard my summer wardrobe; but as the crackers are very heavy I should prefer to take my summer clothes and not subject myself to the undying disapproval of every baggage-man along the line. If I ever write a testimonial it will be for GRANTS HYGIENIC CRACKERS. I live in a large rooming house, and I initiated the other ladies in the house into the pleasure and benefit to be derived from them, and in the language of a late slangy song,

EVERYBODY'S DOING IT NOW

Yours very truly,

Miss M. E. Voorhies,
Topeka, Kansas.

Hygienic Health Food Co., Inc.

SOLE MANUFACTURERS

BERKELEY

OAKLAND

CALIFORNIA

500 PKGS. FREE

Only One for Each Home

Cut this out and present at our exhibit and receive a pkg. of GRANTS HYGIENIC BREAKFAST FOOD. Also ask how you may win the **\$20.00** that we give away.

GRANTS HYGIENIC BREAKFAST FOOD



THE QUALITY BRAND OF CANNED FRUITS,

PRESERVES, JAMS AND JELLIES, MARMALADES, MINCE MEAT, HONEY, CRUSHED FRUITS, FRUIT SYRUPS, ETC.

Our Sunlit model factories are located in the city of Berkeley on the San Francisco Bay Shore. Special attention is paid to health and character of employees and to the perfect sanitation of our modern plant. Our products have distribution throughout the world and add to the fame of California and of Berkeley.

**ONCE TRY THEM—
YOU WILL ALWAYS BUY THEM**

*If your grocer cannot supply you
notify*

Sunlit Fruit Co.

FOURTH and DWIGHT WAY

BERKELEY, CAL.

Phoenix Family Flour

is made from the Best California Wheat
and blended in a scientific manner.

For sale at all Grocers.
Every sack guaranteed.

Eat White Rose Flakes

for your breakfast.
An attractive premium in each package.

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Violet Oats	Primrose Wheat
Peacock Buckwheat Flour	Pearls of Wheat
California Flapjack Flour	Pettijohn's Breakfast Gem
Violet Pancake Flour	Columbia Wheat
Columbia Oats	

ALL PACKED IN SEALED CARTONS

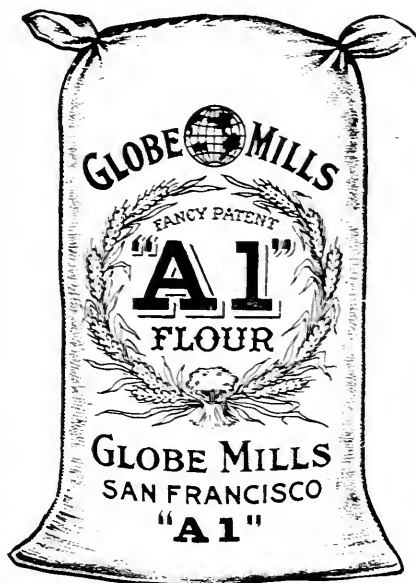
ALBERS BROS. MILLING CO.

Portland
Tacoma

San Francisco
Los Angeles

Seattle
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GLOBE "A1" FLOUR



—is the only flour milled in California in absolutely clean, sanitary mills—built entirely of concrete and metal.

The Six Globe Mills

are located at

San Francisco
Woodland
El Paso

Los Angeles
Colton
San Diego



Why Do We Eat Bread?

Most of us eat bread to fill on, as a sort of introductory affair before the regular meal comes on the table. Whereas bread is one of the most important essentials of the meal.

Bread, when made of the best flour containing the proper amount of gluten, contains more heat, energy-producing qualities than lean beef, veal, eggs, cheese, milk, potatoes, carrots, spinach, apples, oranges, strawberries or lettuce.

If you would have the best bread be sure that it is made of the flour that contains more gluten—gluten makes nutrition.

Flour that has the wheat tested before it goes into the mills is again tested in laboratories after the milling for its food value and baked in laboratory ovens to insure its success to the housewife.

That flour is

SPERRY FLOUR

SEE OUR EXHIBIT ON SECOND BALCONY



WHY NOT
Insist on California Brands
Consider Price and Quality



WHITE BEAR Borax Soap Flakes Gasene

BIG OX



TOP NOTCH

Manufactured by
THE STANDARD SOAP CO.
Manufacturers of Fine Toilet and Laundry Soaps
Berkeley, California



Clover Leaf Borax Soap Chips

10c., 25c. Packages

Kleeno Washing Powder

5c., 10c., 25c. Packages

QUEEN LILY SOAP

ALL CALIFORNIA PRODUCTS

Kaola

A PACIFIC COAST PRODUCT

Kaola is the pure refined oil of the cocoanut. It is really a butter.

Kaola is white, the purest white you can imagine.



The cocoanut is the purest vegetable that grows.

You know lard is hog fat. There are other cooking fats that are part beef fat and part cottonseed oil, they are part animal fat, and animal fat is not to be desired when something better can be procured.

Kaola is packed in 3, 5 and 10lb. tins.

ASK YOUR GROCER

Manufactured Especially for Pacific Coast Trade



PACIFIC HARDWARE AND STEEL CO.

WHOLESALE DISTRIBUTORS

SAN FRANCISCO

LOS ANGELES

PORTLAND

The Pure Food Law is the minimum and Schilling's Best the high standard for tea, coffee, baking-powder, spice and extract.

The law does not distinguish pure but poor from pure and fine.

A Pure Food Product Made in California

JERSEY

BRAND

UNSWEETENED-EVAPORATED

MILK

Guaranteed under the Food and Drugs Act, June 30, 1906, by

H. M. Le BARON & SONS

VALLEY FORD, CAL.

Purely vegetable
Needs no refrigeration
Will not become rancid
Price never changes

Makes better cake than butter
Makes better pie crust than lard
Ideal for Frying



KELLEY-CLARKE CO.

PACIFIC COAST DISTRIBUTERS

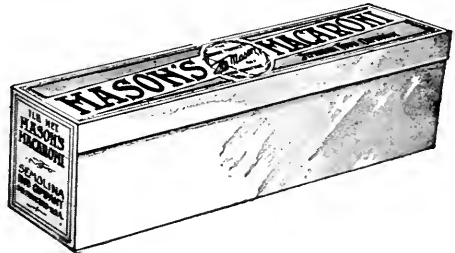
FOOD VALUES

1 lb. net 15c.

Basis Pound

Celery	-	-	-	68 fuel units
Lettuce	-	-	-	72 fuel units
Tomatoes	-	-	-	103 fuel units
Spinach	-	-	-	108 fuel units
Cabbage	-	-	-	121 fuel units
Turnips	-	-	-	124 fuel units
Onions	-	-	-	199 fuel units
Potatoes	-	-	-	303 fuel units
Fresh Peas	-	-	-	454 fuel units
Green Corn	-	-	-	458 fuel units
Sirloin Steak (lean)	-	-	-	949 fuel units

"Mason's" Products - 1665 fuel units



RED BOX

ALL GROCERS

SIX VARIETIES

Macaroni	Alphabet
Spaghetti	Tagliarini
Noodles	Vermicelli

"MASON'S" PRODUCTS are made entirely of Pillsbury Durum Semolina by strictly American methods in a clean, light, sanitary shop.

SEMOLINA FOOD COMPANY

244 CALIFORNIA STREET
SAN FRANCISCO

California Salt Co.

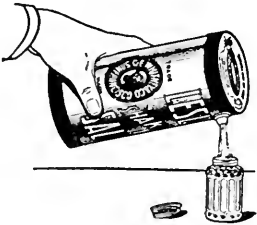
MANUFACTURING OF ALL

Grades of Salt



WORKS
ALAMEDA CO.

OFFICE
SAN FRANCISCO



Freely Flowing
Simply Snowing
Without a Fault

LESLIE SALT

Hermetically Sealed
Patented Spout Package

FOR BAKING

GOLDEN STATE

PASTEURIZED

DRY MILK

NO SPOILAGE

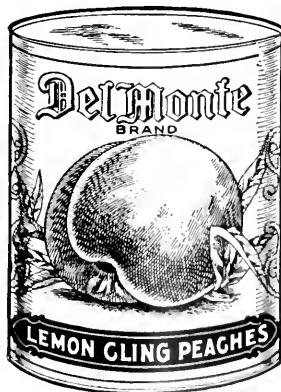


Del Monte



Canned Fruits and Vegetables

Packed Where They Ripen
The Day They're Picked



OLIVE OIL OF QUALITY

F. GARBINI & FIGLI, LUCCA, ITALY

Insist upon receiving

Garbini
"Queen Brand"

It being truly the Queen
of all

Olive Oils

On the market, both as
to Merit and Purity

ESTABLISHED 1890



ESTABLISHED 1890

Ask Your Grocer for

"Queen
Brand"
ONLY

Take no
Substitute

GARBINI BROS. & CO.

Sole Agents for the United States

350-352-354-356 FRONT ST. AND 257-259-261-263 CLAY ST., SAN FRANCISCO
P. O. Box 2034, STATION B.

MRS. EDNA EVANS, the expert on
Home Baking, will lecture upon and
demonstrate the many uses that **Golden
Gate Compressed Yeast** may be put to.
Her five-hour process of making good whole-
some home-made bread will be explained.

Do not fail to look up the **Golden Gate Compressed
Yeast Co's** display at the Public Welfare Exposition.

"THEY TASTE AS GOOD AS THEY LOOK"



Sample them at our exhibit

MILLER & LUX INCORPORATED
SAN FRANCISCO

Producers of the

M & L BRAND also HH BRAND

Hams, Bacon, Lard, Compound and Salad Oil

"OUR EDIBLE PRODUCTS ARE U. S. GOVT. INSPECTED"

Don't fail to visit the cooking
and baking demonstration of

CALIFENE

**WESTERN MEAT
CO.**

The made at home
shortening

RUMFORD

THE WHOLESOME

Baking Powder

Best of the High Grade Powders.

30 cents pound can.

INSTANT POSTUM

An Old Friend in a New Form

Good Postum made INSTANTLY in the cup

A fifty-cup tin for 50c.

\$1.00 tin makes 100 cups.

NO TROUBLE — NO WASTE
CHEAPER THAN COFFEE

FOR SALE BY ALL GROCERS

“CALWA”

NON-ALCOHOLIC

RED OR WHITE

Is really pure

FILLS A GREAT WANT

Calwa Distributing Co.

Market and Second Sts.

San Francisco



“COTTOLENE”

*Nature's Gift from the
Sunny South*

For all cooking purposes, better and more economical than butter and lard.

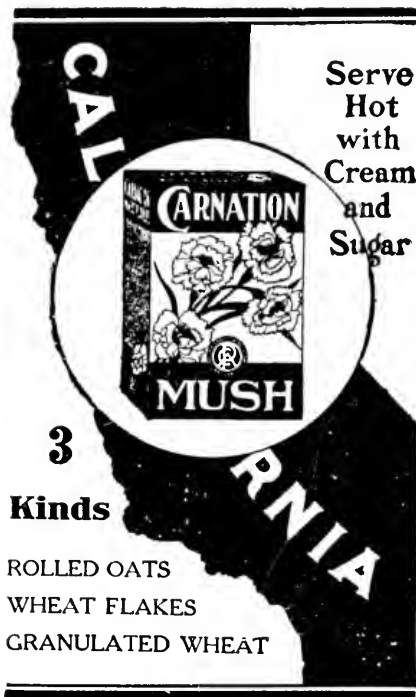
The ORIGINAL vegetable shortening, a product made of highest grade refined cotton seed oil.

Endorsed by leading physicians and chemists and by such well known culinary experts as Mrs. Mary J. Lincoln, Lida Ames Willis, Mrs. Helen Armstrong, Mrs. Sarah Tyson Rorer and Marion Harland.

A splendid collection of 300 practical and up-to-date recipes by these experts in our cook book, “Home Helps”, sent on receipt of 4c to pay postage.

THE N. K. FAIRBANK COMPANY

CHICAGO



PACIFIC CEREAL ASSOCIATION
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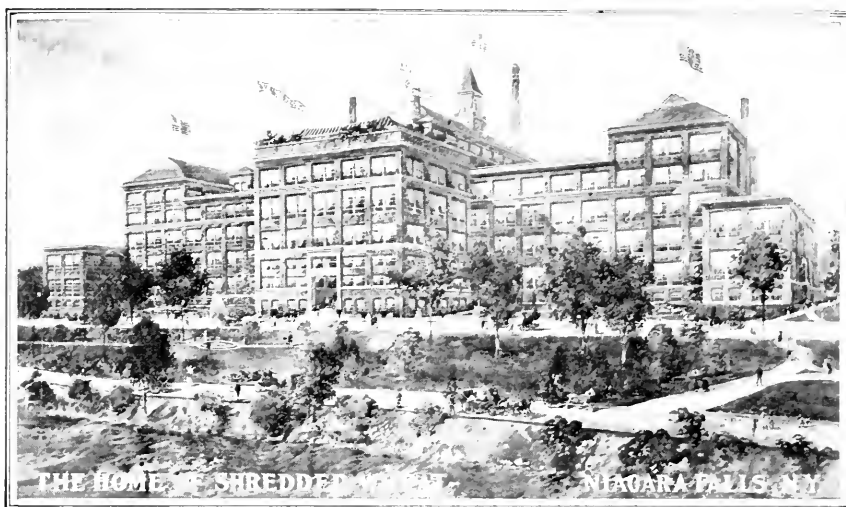
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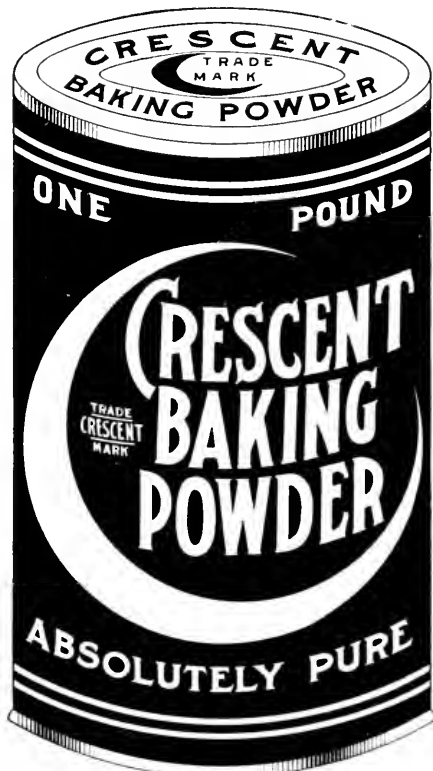
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The Best of

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PACIFIC MUNICIPALITIES



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OUR CITIES
ARE
DOING

ENGINEERING

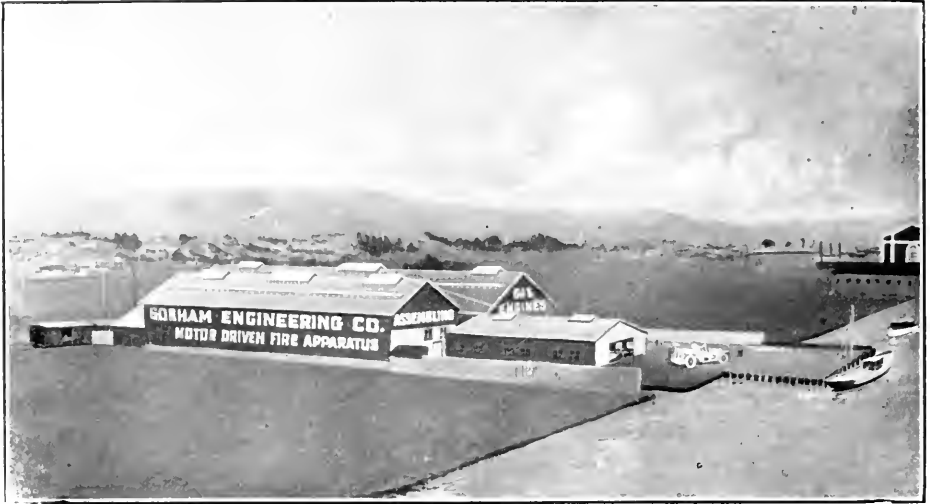
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OFFICIAL ORGAN OF THE LEAGUE OF CALIFORNIA MUNICIPALITIES



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MUNICIPAL officials throughout the Pacific Coast territory will undoubtedly be pleased with and deeply interested in the fact that the most practical and efficient as well as the largest Auto Fire Engine is manufactured at Oakland, Cal., by the Gorham Engineering Co.

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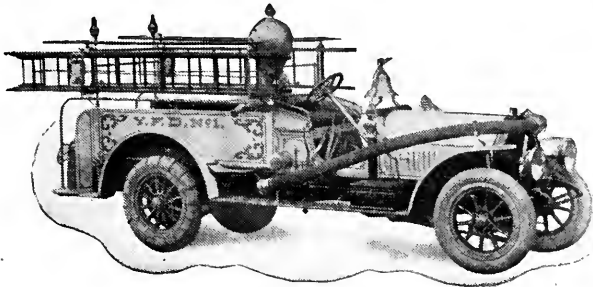
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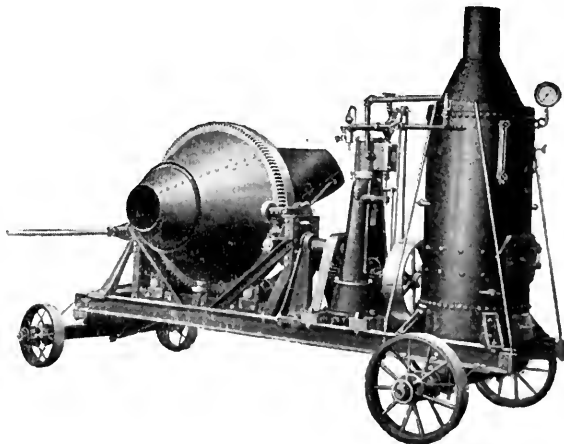
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Take off the heater pipe and you have a standard Smith concrete mixer with side loader.

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PARROTT & CO., Agents for California

San Francisco

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Organized 1897

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Each city belonging to the League of California Municipalities is entitled to a free copy of this magazine every month for each of its officials; if not received kindly notify the Secretary. See that your City is in the above list.

NOTE—Every city official in California reads Pacific Municipalities.

Pacific Municipalities

OFFICIAL ORGAN OF THE LEAGUE OF CALIFORNIA MUNICIPALITIES

Entered at Post Office, Santa Clara, Cal., as Second-Class Matter

VOL. XXVI

FOURTEENTH YEAR

No. 10

EDITORS H. A. MASON AND WM. J. LOCKE

EDITORIAL AND BUSINESS OFFICE NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO

ADVERTISING RATES ON APPLICATION

Address all Communications to "PACIFIC MUNICIPALITIES" Pacific Building
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Published Monthly. Yearly Subscription, \$2.00 in Advance. Single Copies, 25 Cents

THE CONVENTION AT BERKELEY

Many of those who have attended previous conventions of the league say that the meeting at Berkeley was not such a howling success (excuse the slang), others say it was the best ever. The register of delegates in attendance was considerably larger than the meeting last year at Santa Barbara but there was not the same spirit.

The meeting places were scattered too much. This of course was unavoidable, as the university authorities apparently did everything in their power to accommodate the league. Unfortunately there was not a building on the grounds with a sufficient number of class rooms to serve for all meetings, consequently it was necessary to hold the different meetings in different places. In addition to this the program was too big and the various numbers did not dovetail as nicely together as they would have done under other circumstances. It was like a three-ringed circus, and many delegates who wanted to see the whole show found they would have to be satisfied with a part only.

In spite of the difficulties it is surprising to know that a great deal of good work was accomplished. The department of city attorneys was busy from start to finish, in fact worked overtime. A powerful committee was appointed on new legislation with Percy V. Long of San Francisco as chairman. Every member of the committee is pledged to attend its meetings and be on hand in Sacramento when required. A great many new measures affecting municipalities will be introduced in the legislature through this committee.

The clerks, auditors and assessors were likewise very busy at this convention; the number of clerks in attendance far exceeded any previous meeting. A uniform accounting system for small cities was thoroughly thrashed out and the conclusions reached will be published in a future issue of *Pacific Municipalities*. Many of the clerks who attended say they received great benefit from the meeting.

The department of engineers held very busy sessions, devoting a great deal of time to the discussion of light traffic pavements. A discussion of the Imhoff Tank for sewage disposal formed another interesting and instructive topic.

The meetings of the general body, most of which took place in the new chemistry auditorium, did not have enough snap and vim. Most of the numbers were too academic in character and did not call for much discussion. And the discussion which follows any address is what lends interest to the meeting. It is proposed next year that we take particular pains to arrange a program which will provoke discussion and more debate. Another suggestion of merit is to put a limit on all papers. Some people do not realize the value of brevity or understand that what is wanted are new ideas, not elaborate essays. Nevertheless many valuable papers were presented and a number of new ideas brought out. The convention on the whole was a success. The interior delegates were given a splendid opportunity to see what a big thing they have in the state university. A resolution was adopted advocating a measure which would authorize the use of the university laboratories for the benefit of any municipality desiring the same.

We are giving a lot of attention to the subject of efficiency these days, and this reminds us how important it is to arrange a program for our annual meetings that will enable us to accomplish the maximum of results in the short time we are assembled together.

PACIFIC MUNICIPALITIES

A Journal for Progressive Cities

VOL. XXVI

OCTOBER 15, 1912

No. 10

PROCEEDINGS OF THE FIFTEENTH ANNUAL CONVENTION OF THE LEAGUE OF CALIFORNIA MUNICIPALITIES

HELD AT THE UNIVERSITY OF CALIFORNIA,
Berkeley, Cal., September 23 to 28, Inclusive, 1912

MONDAY, SEPTEMBER 23, 1912

2 O'CLOCK P. M., MEETING AT NEW CHEMISTRY LECTURE AUDITORIUM
ENTIRE BODY

OPENING ADDRESS BY HON. A. E. DODSON, PRESIDENT

President of the City Council of San Diego

Ladies and Gentlemen: In opening this, the fifteenth annual convention of the League of California Municipalities, I deem it appropriate to say a few words about the purpose of these annual gatherings, and to call your attention to certain subjects possibly worth your consideration.

This league is composed of officials whose business it is to consider the welfare, comfort and safety of their respective communities. The object of these annual gatherings is to exchange ideas and experience with each other, and to co-operate in securing such state legislation as may be found desirable.

State Legislation and Home Rule.

I think this organization should exert itself to secure for our cities greater latitude for home rule. While the con-

stitution of the state and the general laws should protect a community from involving itself with a heavy bonded indebtedness, and provide generally for protection from reckless expenditure, a community is more able to decide upon its own necessities than the solons at Sacramento.

Formerly, the state laws, and many of our city charters, had so many restrictions around the purchase of supplies and letting public contracts, that little discretion was left the executive branches of municipal government, and purchases were frequently made, or contracts let, for something not at all satisfactory or desirable, simply because the city officials were compelled to contract with the lowest responsible bidder. This was all right in the days when there was

competition, but at the present time we find that competition does not compete. I have in mind a certain Board of Public Works that desired to purchase a certain make of fire apparatus, but as there are only a few dealers in such commodities, these dealers entered into a pool, and the Board of Public Works was compelled to purchase a different and unsatisfactory equipment, whereas, if it had been able to go upon the open market it could have purchased the apparatus desired from the company at less cost than it paid for an inferior apparatus at competitive bidding. Cities should be permitted to purchase such commodities applicable to its necessities and the use and abuse of such privileges should be more under the control of the people who pay the bills. Under more modern charters, where responsibility is placed upon the official, with the referendum and recall provisions, the abuse of power is not so apt to occur as under the old political form of government.

Referendum and Recall.

While these measures are intended as a safeguard against misgovernment and corruption, it is evident that the percentage required by our city charters is too small. Possibly instead of increasing the percentage, a more satisfactory plan could be found by requiring all petitions to be placed in public and convenient localities throughout the city where any person desirous of signing such petition could appear personally and sign the same. By this means, if a sufficient cause exists, there will be a sufficient number of signatures obtained, and the signer who goes to this trouble will doubtless know what he is signing. There should be no obstacle thrown in the way of such petitions, but there should be some method of preventing

the abuse of these bulwarks of liberty by the vicious or discontented. As it is now, a discontented minority can either defeat the will of the majority, or cause an annoyance that may keep a city in an uproar and defeat the very purpose these measures are intended to accomplish. There is no question about the wisdom of such provision in our State, County or City governments, but the abuse or misuse is as bad as the omission. I feel that this subject would be a good one for this body to consider during the present session. Our Mr. Locke will have something to say on this subject.

Uniform System of Taxation.

This is a subject requiring careful and conservative attention. To the average tax payer, it is difficult to explain why two sets of assessors call on him each year to list his property for taxation, and why he must go to two different places, and at different times, to pay taxes upon the same property. The fiscal year for state and county collections does not apparently adjust itself to the convenience of most cities and towns, and a change in the fiscal year must necessarily follow, either by the State or the municipality, to accomplish a change in the present plan. In either case, much confusion might occur. The question to consider is whether or not it would be sufficient advantage to justify the change.

Taxation, Generally.

While the consideration of the tax rate is an important duty for a city official, this is not the only object to be accomplished. Private or public corporations are usually conducted for profit, but a municipal corporation is not. His duty is to consider the health, comfort and safety of the inhabitants, with the least cost commensurate with good gov-

ernment. It is not the administration that can show a low tax rate that should be preferred over one that can show good results from a reasonable tax rate. Its duty is not to get along without expenditure of money, but rather to expend it prudently and economically, avoiding makeshift improvements, and building for the future as well as the present.

Public Safety.

It is with much satisfaction that we note the increased interest taken by this league in matters of protection for life and property. The auxiliary branch under the State Board of Health is and has been exerting an influence for much good throughout the State, while the interest taken in prevention of fires, construction of buildings, and improvement in fire apparatus is not only reducing the fire hazard but it also reduces the loss of life.

Building Construction and Fire Waste.

While this league has given the question of fire waste considerable attention in the past, it appears to me that it would be appropriate to add another department, especially to consider the matter of building construction, oil storage, control of combustible matter, fire waste and fire fighting. The fire waste of this country is enormous, and primarily a very large percent is attributed to the class of construction of buildings and failure to enforce ordinances intended for prevention of fires. Without going into details at this time, I will take the liberty of repeating an extract from my contribution to the "Municipalities" in the March number.

"During the year 1911 the loss by fire in California was \$6,547,198, and throughout the United States and Canada was \$234,337,259, without taking into account the great waste by forest fires, of which we have no record.

"The per capita loss in the United States was \$2.51. The average waste in the United States in two years would more than construct the Panama Canal. While the increase in population since 1880 has been 73 per cent., the increase in fire waste is 134 per cent. Thus you see the enormous waste, notwithstanding the great efforts to suppress the ravage."

Fire Protection in Small Cities.

This is a subject too often overlooked by the trustees in their desire to keep a low tax rate. Yet this is a mistaken economy. It's better to be safe than sorry. If a city has a good water system with pipes of sufficient capacity and plenty of fire hydrants, it can cope with the fire fiend by having relays of hose at convenient parts of the city, provided the volunteer who is the custodian keeps it ready for service and is available at the proper time. Experience, however, shows too often that a delay occurs and a fire gets too much headway to be easily controlled. In other words, what is everybody's business is nobody's. While the volunteer department is of great value, there must be some one or more persons whose business it is to see that the apparatus is always ready. The most modern and efficient apparatus for fire fighting is an auto-drawn combination chemical and hose wagon. Such an apparatus can be purchased for \$6,000 or less, and when put in charge of a couple of paid men, who must always be on the job, will give more protection to a small city than any horse drawn apparatus within the availability of a small town. To properly protect a town, there must be men on duty at all hours; a quick and accurate method of giving the alarm; a good supply of water under pressure, and some rapid method of conveying hose, chemicals and men to the fire.

Sane Independence Day.

The movement known as the "Sane Fourth" has gained great headway in our state within the past three years. The small boy in his innocence, as well as the grown up man with his idiotic desire to make a noise, have both been taught some more practical and harmless manner of showing their patriotism. While most of this has been accomplished by city ordinance, it, like all other municipal reforms was brought about largely by a concerted movement of the American people who had begun to realize that there was no excuse for the large list of cripples and the great fire waste which, heretofore, followed the old method of showing patriotism by fireworks and toy pistols.

Our Greatest Municipal Achievements Since Last Meeting.

This subject in the program is certainly one of interest as it gives the faithful and energetic official an opportunity to furnish an account of his stewardship. I imagine it will be both interesting and amusing.

Jury Trials in Misdemeanor Cases.

Section 7, Article 1, of our State Constitution provides for trial by jury, but it is difficult to convince the citizen who is taken from his daily occupation to serve as a juror in the Police Court without compensation, that this effort to give justice to the defendant is not an injustice to himself. As a rule, the judge is far more capable of doing justice to both the people and the defendant than the average juror, taken as he is from his usual vocation, at a pecuniary loss. Usually he follows the lines of least resistance, and the verdict of a jury in these cases is considered as a joke on account of its uniform failure to enforce the law. To say the least, the average jury in the Police Court is not of

the character contemplated by the framers of our constitution. Our Supreme Court has construed that this section of the constitution need not extend to the trial of minor misdemeanor cases. Therefore, if this body concurs in this view, I would suggest that it memorialize the State Legislature to abolish the trial by jury in such cases.

Training for Public Service.

While it is not in the province of this body to control such a measure, it might suggest some method by which this desirable object could be accomplished. It is very evident that, with the advances made in municipal government along educational lines, the policy of electing a man to an office on account of his sociability, regardless of his experience, or business ability, is unwise and expensive. It is also found that some men who have made a success in the business world are complete failures in municipal matters. In the one he made a success because he had the ability to buy low and sell at a good price; in municipal affairs, he is apt to forget that the health and safety of his community is first, and financial considerations are secondary. In other words, his training in buying and selling is only a small part of the knowledge required to succeed as an official. He should have some knowledge of the law he attempts to execute, and familiarize himself with the requirements of his community. Long terms in office will materially assist, and be safer than in constantly changing officials.

Civic Clubs.

If a civic club, non partisan in composition, could be organized in each community, and make it a business to advocate the election and re-election of men of experience and integrity, this question of training might, in a way, be accomplished. Such a club would have

to, be of citizens on whom the public could rely, and of those who have no other interest than the best welfare of the community. It should not be composed of professional reformers, or fanatics, and must not cease its vigilance at the close of a campaign. It should not be permanent. It can act as an advisory board to officials in many public matters, and as a check upon misgovernment. Such clubs have been found successful in various cities.

Commission Form of Government.

At the present time there are about twelve cities within this state operating under a commission form of government, and quite a large number that have modified their charters in that direction. With hardly a single exception, the good citizens of these cities admit an improvement in municipal affairs. We admit that this form of government is not perfection, and so long as human nature pervades the heart of man, no form of charter can be devised which would bring about a true Utopian government. Recognizing the right, however, of the people to make and enforce their own laws, the commission form comes much nearer that object than any government under control of a political boss or his lieutenants.

Charter Tinkering.

To those who have had no political experience in the construction of a municipal charter, or in preparation of amendments thereto, it may appear as a simple proposition. Every man with a hobby is ready a secure a referendum on the same, and have it submitted to the voters. If all hobbies presented to the committee were submitted, the famous "Jacob's Coat" would not be a circumstance for variety. Public unrest is largely responsible for charter tinkering, but my advice is, if you have a good

charter, stay with it; if it is defective, retain that which is good and amend its objectionable parts. A general change of charter, to those who have had experience, is recognized as dangerous. It's a good rule to let well enough alone. If a change of any charter is desired, see that your committee be selected from practical men of conservative ideas, preferably from those who have had a successful municipal experience. A charter should define principles, but so far as possible, avoid legislation.

Our Municipal Exhibit.

This feature of the league is becoming quite an important one and is found of great advantage to the average councilman as well as to other officials. It brings them in touch with all useful contrivances for municipal purposes, and enables them to become progressive in city building. Waterworks, sanitation, street work, drainage, fire apparatus and electrical appliances are intelligently represented by experts and give these officials a comprehensive idea of what other cities are doing. It must remain, however, as an auxiliary to, and not a part of the convention, otherwise it might become a case of the tail wagging the dog, as has been found to exist in other organizations where the exhibitors were allowed the privilege of the floor.

National Municipal League.

The State of California was favored with the convention of the National Municipal League, which was held in Los Angeles last July. The entire program was replete with most excellent papers and intelligent discussions of the same. The subjects treated were generally live issues of the day and of decided benefit to the officials of California, who are in practical touch with many of these same issues. The personnel of the League

contains some of the brightest minds in this country.

The State Highways.

As the State has appropriated the sum of Eighteen Millions of Dollars for construction of state highways, it is to the interest of every Californian that this money be judiciously expended and the best possible construction be obtained. This especially interests the municipalities of the state as they pay about 70 per cent of the expense of such highways, although not a mile of it is to be constructed within their limits. The committee of engineers appointed at last session have made a very complete and careful report upon this subject, as seen in the August number of the "Municipalities" and certainly deserves the thanks of this body for its comprehensive report. It is evidently a mistake to attempt to cheapen the character of work for the purpose of stretching it over the entire length of the system. It is far better to complete such portion permissible from the funds available in a good and substantial manner, even if a portion can only be graded and left for future completion. Such portion as is properly constructed would require but little for maintenance, while a cheaply constructed system would be a continuous source of annoyance, expense and I might add—profanity.

Millions of dollars have been expended in road making experiments in California, and these experiments have demonstrated that certain methods are successful and others uncertain or possibly complete failures. We cannot afford to

experiment further, and we feel this body can do no less than urge the Highways Commission to build only the very best construction, even if some portions must be left incomplete for want of sufficient funds.

In this connection, considering the diversity of soils and conditions with which this work must be constructed, does it not appear sensible that some disinterested authority be authorized to analyze the soil, as well as all material, used in construction? It would not answer to leave such important matter with the contractor, therefore it follows that a responsible body, like our State University, could be of immense service in furtherance of this important measure. Would it not be well to bring this matter before the Commission?

Conclusion.

As this convention, held in the University City, is the largest in attendance that this League has ever made, we hope it may go down in its history as the most successful. Our efficient Secretaries and the Committee have laid out work enough for an average session of the State Legislature. To accomplish it all in the limited time at our disposal will require a systematic division of the various subjects, and prompt attendance at all the meetings.

By the time you have wrestled with all the subjects on the program, together with the interesting features found in the different departments, you can return home with the satisfaction that there was something doing while you were at Berkeley.

PROGRESS IN MUNICIPAL GOVERNMENT

BY HON. GEORGE W. STONE, MAYOR OF SANTA CRUZ

What I have to say on this subject has been suggested, very largely, by the admirable paper presented to the League at its last meeting at Santa Barbara. Let it be understood also, that I refer chiefly to cities of the Sixth Class, although larger cities have much in common with smaller ones. Since Mayor Mott's paper was printed we have all had the opportunity to study the problems he presents. I trust the opportunity has been improved, for the subject is one of great importance. First impressions are not always the best, and we are apt to fancy we agree with some attractive presentation of a subject until further study reveals points of difference. Mayor Mott's paper is very far from being dogmatic; it is mainly suggestive and does not advocate any definite plan or adapting the German idea of municipal government to American notions, but it does make some features of that system plain and also attractive.

My own experience has hardly been extensive enough to make me an authority upon the subject, nevertheless, such experience as I have had has convinced me, first, that the Commission form of government, as we now have it, is not perfect. There are weak spots in it, some of them very weak indeed. First I mention that while the small number of persons charged with the duty of government is highly efficient for administrative purposes, it is not equally efficient for legislative purposes. True, the initiative, referendum and recall were devised to permit the people to participate in the administration of government, but these measures, admirable as they are, cannot be put into every

day use, but must be reserved for grave occasions. The legislative function is too important to be entrusted to any five men, however well qualified they may be for administrative work. The executive function may be separated and it should not be weakened by being united with the legislative. A man may be an excellent executive officer, yet be quite unfit by nature or practice to devise legislative measures. The latter requires knowledge of social conditions, and familiarity with existing laws and regulations. Every one with legislative experience will testify that it is much easier to criticise than to devise legislation. The many considerations involved make it difficult to avoid conflicts, and to enact laws that can be administered without producing confusion, and many times prolonged litigation. Again, local interests cannot be understood and appreciated with sufficient thoroughness by an official who knows little about conditions, except as they exist in his immediate surroundings, or as they are represented to him by those who are seeking to advance their own interests. A wider knowledge gained by bringing together representatives of every interest, is needed upon which to base legislation. This can only be secured by a thoroughly representative body of men and women, gathered from all parts of the City.

From this I am led to believe there should be a City Council, or Assembly, consisting of persons chosen from the various localities with sole power to make laws and ordinances, having no control over the executive department. This ought to be an unpaid service rendered by those who are willing to give

the necessary time and study to the problems of the social life of the City. It need not meet oftener than monthly, or possibly once in two months, unless some emergency should arise calling for special meetings. Of course the City would bear all necessary expenses for this service, but aside from the employment of a Clerk or Stenographer there need be no considerable expense connected with the body. Possibly the Mayor may be ex-officio the presiding officer of this Council.

The executive department should be under control of the Mayor and four trustees. The Mayor should be the only paid member of this group, the trustees acting as his advisers and assistants in the appointment and dismissal of all City officials in the executive department, and in such other matters as the Mayor may require. The Mayor should be paid sufficient salary to secure the services of a capable and experienced man. He should be required to give his entire time and attention to the duties of his office. The selection of the four trustees before referred to, might be entrusted to the Mayor, such selection to be made from the members of the City Assembly chosen by the people.

It is not the purpose of this paper to set forth the details of City government as most of them are already well established by the ordinary Commission charter. The principal suggestion is that of the addition of a Legislative branch to the City government. This I understand is the lesson we may learn from Mayor Mott's paper of last year. Every executive officer of a City government knows the difficulties that stand in the way of an effective administration of ordinances. It is impossible to effectively enforce an ordinance that interferes with the personal habits of the people, no matter how objectionable

those habits may be. Justice, as administered by the average jury is not always of a variety that excites admiration. Every device for enacting laws and ordinances that can be enforced without trial by jury ought to be welcomed by good citizens. Nothing so quickly and thoroughly demoralizes a police force as the discharge of prisoners who are clearly guilty of violating ordinances. Nothing so quickly brings all law into disrepute as the failure of a jury, or an officer, to enforce the law. Sometimes ordinances are passed, knowing they cannot be successfully enforced, but merely for the purpose of acting as scare crows, but this is trifling with the sanctity of law, and it ought not to be encouraged. Every failure to convict for violation of a law, makes the next failure more probable. Ordinances ought not to anticipate public sentiment, but rather to reflect it. Laws should not be enacted until they are not only needed but demanded. It is almost impossible to enforce any law that has not a strong public sentiment behind it. This is illustrated by frequent failures to prevent gambling, drunkenness and other vices, where there is no outspoken, fearless sentiment against those evils. Unless those who are opposed to evil practices are willing to stand out and openly oppose them, it is difficult, indeed practically impossible, for officials to execute such laws as may be enacted to suppress them.

All this makes it clear that a legislative body, charged with the duty of enacting laws and ordinances, should be thoroughly and extensively representative in its character, thereby reflecting the general sentiment of the community, which is small body, chosen chiefly for administrative purposes, cannot be expected to do. The executive department can execute laws that have a strong pub-

lic sentiment behind them; but when it does not do it, it may rightfully be held responsible for the failure. The wisdom of the founders of this nation was clearly shown in the separation of the legislative from the judicial and the executive. These divisions belong in municipalities as they do in the larger political divisions of government. The Mayor and his associates are distinctly executive officers, and they will be better able to do their duty when it is known that they have no discretion in the matter of enforcing ordinances.

Perhaps an opinion may be expected concerning the number required for the legislative branch thus outlined. For cities of the sixth class I should suggest that it ought not to be less than thirty, possibly even a greater number, but whatever the number, the membership should be drawn from all parts of the City through some system of districting. It should be as thoroughly representative in its character as possible. Such a body would be of great value to the executive officers of the city. The needs of the City are numerous and varied. The executive officers discover them and are perhaps better qualified to suggest remedies for difficulties than others, but the first, and the greatest need is the co-operation of the public in executing laws and ordinances. It would be a distinct advantage if the Mayor and Commissioners could present to a selected body of citizens the results of their experience and make suggestions growing out of that experience. Through such a legislative body public sentiment might be created, and as every municipal officer knows, by many an unpleasant experience, it is practically impossible to enforce an ordinance that has no such sentiment behind it. This seems to be one of the distinctive features of modern democracy. Time will

tell whether it presages the end of trial by jury, or a revision of the system as we now have it. As it now stands trial by jury is a familiar device, utilized many times by so called lawyers, to secure a discharge of their clients from the obligations of the law. Instead of being the bulwark of freedom and the safety of the individual, it has become almost an object of ridicule and jest. Unless something is provided to take its place the enforcement of ordinances will soon become subject to the will of the offender, rather than the will of the people as expressed in ordinances.

Th present charters, known as Commission Charters, cover most of the points involved in a further consideration of this matter. The main point being the separation of the legislative and the executive branches of City government. The establishment of a body of interested and competent citizens, of both sexes, of course, who should stand behind the executive department with an understanding born of knowledge. One to which the executive could turn with suggestions, and through such a body teach the effective portion of the community. With such an outfit a campaign of education in municipal progress is possible. The small body, compact, under discipline and control for executive purposes, and a large body of interested citizens for legislative purposes, familiar with the needs of the community, also having the ability to obtain for the executive the things needed, and what is even more important, the backing, the moral support, without which the most important reforms and improvements are impossible.

This is the lesson of the paper presented to us at our last meeting by Mayor Mott of Oakland, as it appears to my mind. Doubtless there are other im-

provements possible, but this one is easily adapted to present methods.

The title of this paper suggests one other subject that is worth while. I shall not attempt to present a solution of the question. That it needs attention no doubt every one connected with municipal government will readily agree. I refer to the need for plainer, simpler laws relating to City improvements of all kinds. Progress in municipal government can never be easy or even possible, while close fisted property owners and mossbacks generally, are able with the assistance of fee hunting attorneys to block proceedings with technicalities that have no relation to actual conditions.

Under existing laws every municipal government is at the mercy of the classes mentioned, and it is fortunate if any proceeding escapes the perils to which I have referred. Some method should be devised whereby the execution of any plan for street or other improvement may be determined previous to the expenditure of any public money to carry out such plan.

Present conditions practically tie the hands of those charged with public improvement, but the same conditons afford no protection to City officials from unjust criticism. Ampler powers should be given to those entrusted with the administration of City government in the matter of street improvements.

One other brief reference, namely the clear authorization of City government to do its own work whenever it deems it advisable to do so. With modern methods of administration, involving public-

ity, personal responsibility and backed with this wholesome power of recall, the old objection to this method has no justification. The citizens would be better served, work would be more uniform and of better quality than under the contract systems. I would not have it obligatory that the City should do the work, though of course all work must be done under the supervision of the City's officers, but I am Home Ruler enough to believe that each City should have the right if it chooses to exercise it, to do public work.

These are some of the points that seem to touch upon progress in municipal government, they are given with the hope that study of the subjects may be stimulated.

In seeking to define progress it may be interesting at least to turn backward even to the history of Massachusetts Colony. We find in the Boston records of the year 1640 the following:

"It is agreed that Edward Baytes (in regard of his absence at Isle Gables) shall be allowed six months to build upon his lot; otherwise he consents to leave it to the Town, his charges being allowed to the value."

From this it will be seen that the drastic methods of modern times were present even in the days of the forefathers.

Finally; experience in the administration of municipal government must inevitably impress one with the lack of reasonableness among men generally, and the necessity for the manifestation of skill and patience, especially the latter.

MUNICIPAL REFERENCE LIBRARY MOVEMENT IN THE UNITED STATES, AND ESPECIALLY IN OAKLAND, CAL.

BY CHAS. S. GREENE, LIBRARIAN OF THE OAKLAND FREE LIBRARY

This is not my first appearance before this august body. Away back in 1902, at a meeting in San Jose, I had the honor to present to you, in the name of the California Library Association, of which I was then President, a request for your help with the Legislature in creating a Library Commission for this State.

After the talk it was stated that a motion was to be made referring the matter, which was new to most of the League, to your legislative committee to be considered in detail and to be acted upon.

In my cock-sureness in the righteousness of the cause, I asked for objections to the scheme,—and got them in plenty from a member from Los Gatos. He spoke with the authority of the Pope of Rome and the Archbishop of Canterbury to the effect that the people where he came from did not need any one to tell them what to read.

More than that, when the time for action came, he got ahead of the man who was to have made my motion, and moved to lay the matter on the table. This motion prevailed by a divided vote, largely from the advantage that the affirmative always carries, and the League of California Municipalities lost the chance to put itself on record for so good a cause.

But you will be glad to know, I trust, that the cause was not injured seriously: only a few days later, the Trustees of the California State Library sent word that they would like to have a

joint meeting with the executive committee of the California Library Association, and offered to take upon themselves the duties of a library commission, if the association would help them pass a law enlarging their powers so that they could do so.

It was so carried out, and the State Library entered on the splendid career of useful expansion that has brought about the federation of California libraries, the establishment of scores of town libraries, and later has started the system of county libraries, which has caused the whole library world to admire California. All this is aside from my subject, but I hope that you will pardon its introduction.

It is hard to fix the date of the beginning of the Municipal Reference Library, as like all products of evolution, it gradually grew, by specialization, out of the generalized type.

Undoubtedly, the immediate cause of its establishment was the success of the legislative reference libraries, now maintained by all the progressive states. In its present form the legislative reference library is the outcome of the work of Dr. Chas. McCarthy of Madison, Wisconsin, who brought about the establishment of the first legislative reference library, under the Wisconsin Free Library Commission in 1901.

The late State Librarian of Massachusetts, Mr. C. B. Tillinghast, told me that he objected to the claims of novelty made by the Wisconsin people, because he had been doing legislative reference

work for the Massachusetts Legislature all his official life. And surely the California State Library had for many years found the session time a very busy season. Nevertheless the California State Library was very glad to send to Wisconsin, eight years ago, for new methods and new ideas, and frankly to copy the work that Dr. McCarthy had made successful, even to the extent of importing people trained by him to put it into operation. Surely his ideal for such a library, that it should place on the desk of every legislator every day during the session a well-considered digest of all the obtainable material affecting, *pro* and *con*, all subjects to be considered that day, is something never conceived by anybody before him.

The need for legislative reference work was easily seen: it had been found that a large proportion of the laws passed by each legislature were abortive because of defects in verbiage, of unconstitutionality, of unexpected by-products, of failure, for various causes, to perform the thing that they were expected to do. Most of these shortcomings could have been avoided, if the bills had been gone over carefully by an impartial expert and compared with the legislation of other states on the same subject.

The legislative reference library therefore won its way at once, and is now working in 22 states, gathering material on all sides of a multitude of questions, rendering aid to legislators, by offering the results of experience in the state and elsewhere, and drafting impartially, for any legislator, correct in form, that may reasonably be expected to meet the purpose intended.

The larger cities, noting the good work, soon began to see that a similar service was needed in municipal matters. Materials were gathered in civic

clubs, by individual officials, and yet more persistently by librarians, and associations.

In 1910, the National Municipal League, in its conference at Buffalo, through a large committee of most efficient and noted librarians, of which Dr. McCarthy was a member, considered this subject and formulated a series of recommendations, presented in a report by Dr. Horace E. Flack, Legis. Ref. Librarian of Baltimore, as follows:—

1. That municipal reference libraries should be established in all large cities.

2. As a general rule such libraries should be under the control of the public library.

3. That such libraries should be located in the city hall where feasible.

4. That the qualifications for the head of such a library should be a liberal education, with special training in political science, economics, municipal government, and methods of organization and administration, and he should be selected for merit alone.

5. That the head of the municipal library by that method which, in the particular city, will, under the local conditions there prevailing, tend most completely to eliminate political considerations. In some cities, the most satisfactory results may be obtained by lodging the appointing power with the public librarian or the library trustees. In other cities, conditions may make it advisable to have appointment made by a select, partial, and non-political board.

6. That the municipal reference library be made the agency for the exchange of municipal documents.

7. The functions of the library should not be restricted to any particular phase of the work so long as that work relates only to the collecting, collating, compiling, and disseminating of data or information. It will also be one of the

functions of the library to aid in the drafting of ordinances. Of course the principal work will be concerning municipal questions and special efforts should be made to secure such information for the city officials who are responsible for the administration of the city's affairs, but to be of greatest value such a library must undertake to furnish information to the public generally. Such a library will be used extensively by the press, and this is one of the best ways of reaching the public. Social, civic, and improvement associations will also frequently have occasion to use such a library, and its value to the city cannot easily be overestimated. If the bureau be under the control of the public library, it would seem advisable to issue a bulletin containing interesting comments for newspaper purposes and showing how the reference library can be of assistance to officials and to the public, as each matter of general interest gets the center of the stage.

It would also be expected that the reference libraries tear up and file all helpful things together—all the information possible on each particular subject, so that when one wants to know what has been said, for example, about the health department, police department, etc., it will not be necessary to go over fifty or one hundred volumes.

The head of the library should by all means maintain a neutral attitude on all questions; for the very moment that he begins to advocate or oppose any measure or proposition, he will begin to make less effective the work of his department. He must not make it possible for any one to say that he is collecting information because of any personal bias of his own. His only interest should be to secure the data and let the facts speak for themselves.

In reaching these conclusions, we are

aware that conditions exist in some cities where better results might be had by the establishment of separate and distinct bureaus, but where this is done we cannot urge too strongly that the department be placed under the control of a non-political board. If such libraries become subject to political patronage, they are likely to become, not only useless, but really harmful. Unless they can be inaugurated under conditions which will keep them out of politics, it would be better not to have them.

In presenting the above recommendations, the committee realizes that such libraries of themselves will not bring about an immediate reform in the city government, nor will efficiency in municipal administration follow as a necessary result of their establishment. But it is respectfully submitted that such a library would be a valuable instrument or agency in the efforts to make our municipal governments more business-like and more efficient. The library will not of itself do away with the abuses which exist, but it will furnish the means whereby such abuses can be lessened, for it will be able to supply the data and the knowledge which are essential to all good government. (Dr. Horace Flack's Report, approved by the following Committee on Municipal Reference Libraries.)

Names of Committee:

Dr. Wm. H. Allen, Bureau of Municipal Research, New York City;

Milton J. Foreman, City Council, Chicago, Ill.;

Horace E. Deming, New York City;

George Godard, State Library, Hartford, Conn.;

Clarence B. Lester, Legislative Reference Dept., New York State Lib., Albany;

Hon. Oscar Leser, Tax Court, Baltimore, Md.;

Dr. Chas. McCarthy, Legislative Reference Librarian, Madison, Wisconsin;

Hon. Thos. L. Montgomery, State Librarian, Harrisburg, Pa.;

Prof. Chas. E. Merriam, Univ. of Chicago, Ill.;

Robt. Treat Paine, Jr., Boston, Mass.

It was a pleasure to us in Oakland to find that, without having seen this report, we had adopted its precise plan. As soon as the library authorities knew of the new City Hall they asked for a space in the building for such purposes and for a newspaper reading-room. The space was set aside for us, about 1375 square feet, in a very prominent situation, immediately to the left of the main entrance door. As our ideas have grown, it has become evident that the municipal reference work will require all the space, except perhaps room for a few papers from a distance that deal principally with civic matters.

Having the space in sight, we began the collection and classification of material for the department, and appointed as its head Mrs. E. H. Overstreet. In the remainder of this paper I shall quote freely from her report of her first year's work without other than this general credit. It is quite correct to do this, because it is the characteristic of all the municipal reference workers to gather material and formulate it into expression for the use of an official without expecting or receiving the least personal credit.

"Although the California State Library at Sacramento has for a few years had such a collection, or department, the credit of being the first city on the Pacific Coast to establish a public Municipal Reference Library Department belongs to Oakland. Her library went

into operation in July, 1911. Seattle followed as a second, during this year, 1912. San Francisco has an excellent collection, and plans soon to appoint a special librarian. Los Angeles has a municipal reference collection in its document department of the Free Library, recently augmented by the addition of the collection from the Municipal Reference Bureau of Bethlehem Institute of Los Angeles.

"Baltimore, Madison, Wisconsin, Chicago, Kansas City, Milwaukee, St. Louis, Minneapolis, and Indianapolis, who have established most energetic and efficient Municipal Reference Libraries, have been generous in aiding us by excellent counsel and information in the forming of our new department.

II. Aims of Our Municipal Library.

"The aims of our Municipal Reference Library are:—

"To obtain for officials the latest information upon all great problems that confront the city government, so that they may profit by the successes, and avoid the errors, of other cities;

"To discover the means by which other cities as the congestion of population increased, have reformed their charters, built up their streets and harbors, and advanced the public welfare, physical and moral and intellectual;

"To be free, for reference, to the public who wish to study municipal problems;

"To correspond with other city officials, clubs, and other experts, for information on mooted questions;

"To make further investigations of city problems by abstracting books, making bibliographies, gathering documents, etc.

"Thus to collect all data possible, on all sides of a question, and to keep a historic temper," a scientific attitude to-

ward truth, and let the inquirer draw his own conclusions.

III. Our Location and Work This Year. 1911-12.

"At present the office of this department is in the Document Room on the third floor of the stack room in the Main Library building at 14th and Grove Streets. It will remain there ready for work from nine A. M. to five P. M. daily, till the new City Hall is furnished. At present a reading table in the third stack affords a quiet corner for any investigator to read and take notes. The material is near at hand.

"The librarian has gathered information and material, largely at the request of city officials, or students of civic affairs, or officers of improvement clubs, or in view of questions soon to come before the City for solution, on the following topics: Municipal Reference and Legislative Reference Libraries and work, liquor licenses and traffic, franchises, ordinances, charters, Commission Form of Government, Municipal Civil Service, comparison of librarians' salaries with teachers' salaries throughout the United States, methods of taxation, systems of cataloguing municipal reference libraries, municipal ownership of the telephone, city-housing, garbage, parks, playgrounds, harbor improvements, street-paving, fire and police protection, public health, weights and measures, the unemployed, methods of saving the people's money, cost of living, efficiency of service, and other subjects that make for the welfare of Oakland.

"This has been accomplished by corresponding with fifty cities on these questions, the letters in reply being mounted and catalogued for future use; By Collecting United States, State, and City documents on these municipal topics;

"By collecting charters and ordinances of about forty progressive cities, especially choosing those with commission form of government; or with problems that we have to solve;

By ordering the best recent books;

By keeping a clipping bureau of articles from ten leading newspapers;

By making bibliographies and abstracts of books for busy officials;

By visiting other libraries to make investigations; the University of California, the State Library, and the Free Library of San Francisco have been most courteous in lending us material.

"Our Municipal Journals include:—

1. The American City.
2. City Hall, Midland Municipalities.
3. Engineering News.
4. Engineering Record.
5. Equity.
6. Municipal Journal and Engineer.
7. National Municipal Review (Organ of Nat. Mun. League).
8. Pacific Municipalities (Organ of League of California Municipalities).
9. Professional Memoirs (Corps of Engineers of U. S. Army, etc.).
10. Public Officials' Magazine.
11. Short Ballot Bulletin.
12. Transactions of American Society of Civil Engineers.
13. Special Libraries.
14. Periodical Reports of other City Departments.
15. Municipal Record—of San Francisco.
16. Municipal News—of Los Angeles. Subscribed for.

"The Municipal Clipping Bureau includes, so far, about fifty topics.

V. Co-operation of Various Departments.

Several City Officials have already offered to place their technical libraries with our collection when we move to

the City Hall, where they will be catalogued and kept in order. The Chamber of Commerce has given us much good material, and will further help us to build up our statistical library with valuable data, of great historic interest to Oakland. We are now writing to chambers of commerce of sixty leading cities in the United States and Europe for their best literature, and hope to be placed on their mailing lists.

"To co-operate with the main library, cards of different color placed in our card catalogue will guide to material on the same subject in the Carnegie Building (only three blocks distant), and *vice versa*.

VI. Aims and Hopes for the Coming Year.

"We plan to send out notices that will bring us into closer touch with the departments of the government, so as to get the material into the right hands. We hope to do much research work for them and for others.

Statistics and information will be furnished, free of charge, to any official, or other investigator.

"We hope to become the agency of exchange for our municipal documents with those of other cities, and to be put on their mailing lists."

As to the permanence and ultimate general adoption, by cities of any considerable size, of the municipal library plan, I have not the slightest doubt. It has the same element of vitality in it that the general public library movement has shown, and few indeed are the new ventures made in the library field that do not astonish even their originators by the rapidity and luxuriance of their growth. In particular the municipal reference library will flourish, because it will actually make good by preventing many costly blunders on the part of the city administration, and by aiding many

good plans, and its work will be done in the very presence of the people, who control the public purse, and who, when they approve, can make their approval immediately effective.

There will thus grow up in California a considerable number of such libraries, and they will co-operate with each other, and with similar libraries in other states, and with the state libraries, and with the Library of Congress: for co-operation is the very blood of the modern library.

In the long run they will help toward the achievement of something that may in truth be called a science of government. They will prove the most efficient helpers that such a league as this can possibly have in bringing about the general enactment of measures that will make for the good of all the people. They will in no wise supersede such organizations as this League of California Municipalities; for the meeting together, for oral discussion and conference, by men engaged in the same work is necessary for the best service in any important task. The personal friendships and the informal talks between sessions are wondrously effective in promoting the fine professional spirit needed in our civil government. To say that this will create an office-holding class is beside the mark; for the technical conduct of city departments is a professional matter, and we can no longer endure the happy-go-lucky system that put any untrained "good-fellow" into a city office because he had the American faith in his ability to do anything that man has done,—like the man who "guessed he could play the fiddle—he had never tried."

Such professional and trained office-holders are now expected in certain parts of our government. You would not put any one but a physician in charge

of a Health Department, or any but a civil engineer in the City Surveyors' office. So the trained administrator will be more and more in demand, and we shall perhaps come to the practice of the German cities that advertise throughout the Empire for a mayor.

At least, once in office, our officials will be expected increasingly to keep

themselves informed as to the very latest and best in city government, and to profit by the examples, the experiments, the successes and failures, of other cities. And the best way that they can effectively gain this information will be by the efficiently managed, thorough equipped, and properly supported municipal reference library.



MORE EFFICIENCY IN THE HEALTH DEPARTMENT OF SMALL CITIES

By Dr. F. W. Browning, Hayward, California, Chairman Committee on Standard Methods of Public Health Administration, California State Board of Health. Read before the League of California Municipalities Convention held at the University of California, September 23-28, 1912.

The programme presented to you at this Convention is an exceedingly interesting and valuable one, in that it deals with so many varied aspects of municipal affairs. At this session you are invited to discuss a subject of paramount importance to the smaller cities of the State, viz, "More Efficiency of the Health Department of Small Cities."

The wonderful awakening in all departments of our Municipalities so apparent throughout the State must be credited to the successful efforts of the League of California Municipalities in bringing together so many of the representative people of our communities for mutual discussion and advancement.

There is evidence of progress all along the line and in every department. Perhaps the one branch of our municipal organization which has been least affected in efficient results is the Health Department in our smaller cities and rural communities, and this, not because the officers in this department have been derelict in their duties or not enthusi-

astic, but because the Boards of Trustees have not been sufficiently impressed with the needs of the Health Department and have not seen their way clear to make a regular appropriation for said work. If I can in any slight degree impress upon the responsible officers the crying needs of every little town for some relief in the care of the Public Health I shall feel that my time has been well spent.

It is true that most towns have a Health Officer and some have their Board of Health, but as the office is purely honorary, and any effort made along the lines of progress, until the public have been sufficiently educated to its necessity, produces bad feeling between the individual and the Health Officer, who is entirely dependent upon the good will of the community for his bread and butter, he has no incentive to urge upon the proper authorities the necessary remedial measures to improve the Public Health.

If the Town Trustees or other body

could be impressed with the fact that the modern Department of Health is able to save the lives of many of the citizens who yearly succumb to the many "preventable diseases," it is beyond the question of peradventure that every such Board would see to the proper development of the Department of Health.

From time to time epidemics of Diphtheria, Scarlet Fever, Typhoid Fever, and such like, visit our little towns and rightly enough the authorities bestir themselves to have the epidemic stamped out at once, but not until many valuable lives have been sacrificed. Would it not have been the policy of wisdom to have so organized the Department of Health that this "watch-dog" would have *prevented* the development of the epidemic? The most of these lives would have been saved and the economic loss to the community caused by these deaths would likewise have been prevented.

The science of Public Health has advanced to such a point that in very truth the Department of Health now is become the "life insurance" of the community. The town protects its property and records against destruction by fire by paying the fire insurance premium. Should they not likewise protect the lives of the community from epidemic, sickness and death by the proper equipment of the Health Department?

As a result of the knowledge gained from the study of Bacteriology, or the scientific study of micro-organisms, we now understand how many of these diseases become epidemic and consequently have learned ways and means for preventing their development. We KNOW that one way, among others, by which Diphtheria, Scarlet Fever, Typhoid Fever, Tuberculosis, etc., are spread and become epidemic in our midst, is by the milk supply. We KNOW, too that

infants is caused by infected milk. We also are learning that much of the "sore throat" epidemics is caused by milk which appears clean and pure, but is full of disease-bearing bacteria. And we also KNOW that with a properly equipped Department of Health and the accompanying inspection of dairies and creameries there need never be severe epidemics of such diseases. We KNOW again that our schools are a great source for spreading these same diseases through what is known as "disease carriers," and by proper inspection thereof many little lives are being constantly saved.

So, gentlemen, I urge upon you the spirit of the Nation-wide Public Health movement — "Prevention is better than Cure." It goes without saying that every one of you agrees with me in this, and whilst I also appreciate that common sentiment among the governing bodies of the smaller cities that the necessary expense to carry these ideas into practical effect are too burdensome, or as I have heard it commonly expressed by such Boards:—"Cities of the sixth class have not yet advanced far enough to apply these progressive ideas to themselves," yet I sincerely disagree with them, and I venture to affirm that were you to fully explain the needs of a Department of Health in every Town to the people, there would be very little opposition to an additional five cents on the tax levy when it is clearly understood that it is to establish such a department. Again I reiterate that it is just as important to protect or *insure* the lives of the people in your city by establishing a modern inexpensive Department of Health as it to protect the records and other property of the town against fire, or your own lives against sickness and death.

The National Pure Food and Drug

Law has done much to regulate and protect public health in these particulars, yet the only ideal natural raw food on which babies and sick friends subsist is entirely ignored by this law. Milk, because of it containing *all* that goes to make a perfect natural raw food, is the one food, above all others, which should be carefully guarded from contamination. The facts, however, are that no protection is given it and as a consequence it is probably the worst contaminated of all foods. Statistics show that 80 per cent of all deaths among babies under one year old from intestinal troubles are due to infected milk; that 114,000 such lives were sacrificed last year in the United States; that there were 1004 deaths among babies in California in 1911 from intestinal troubles, or 803 to be accredited to contaminated milk; that in my own home town during a period of four (4) years there has been an average of one such death every month.

By way of comparison and as indicative of what can be accomplished I have the records of the New York Milk Commission whose figures for the City of New York show as follows:

	1906.	1911.
Babies born	111,772	134,477
Babies died under 1		
year	17,188	15,017
Babies death rate per		
1000 born	153	111
A REDUCTION OF 27 PER CENT		
IN FIVE (5) YEARS.		

This has been accomplished in two principal ways:—

- (1). By rigid inspection of Milk Plants and Creameries.
- (2). By a campaign of education for clean and pure milk.

The infant of today is the man of tomorrow. By the conservation of the lives of our babies today we are, in a

very large degree, combating the present day tendency of "race suicide."

Public opinion is being aroused to the importance and consequent necessity of proper and thorough milk inspection as the *ONLY* means of *preventing* this annual death rate of 100,000 babies under one year old.

Were Yellow Fever to appear in our country and destroy 100,000 lives in one year methinks public opinion would be panic stricken. Yet it stands idly by watching 100,000 little lives being snuffed out *EVERY YEAR* by unclean and impure milk. We are told by the Commission on Milk Standards, which is composed of the leading minds in all branches of the milk industry, that there are four grades of milk:—(A) Certified milk; (B) inspected milk; (C) pasteurized milk; (D) milk not suitable for drinking purposes. Hence it is very evident that to successfully combat the enormous loss of life from infected milk that every community must insist on proper control of its milk supply. I appeal therefore to every governing body, be it of a large city, a small town or a rural community, to put into the hands of your respective Health Departments the means of protecting the public from this *DAILY* source of danger—*UN-INSPECTED MILK*.

I might enlarge on water contamination, sewage pollution, inspection of schools, etc., showing the necessity of constant inspection and watchfulness of these sources for the spread of epidemic diseases; or, too, that very common cause of disease contamination — the house fly, or the carelessness of consumptives in the spread of tuberculosis, or the mosquito in causing malaria, but surely enough has been said to cause you to pause and think, and on returning to your constituencies to act in a reasonable way by insisting on an ef-

ficient Health Department in your community.

The motto over every Department of Health should be "Prevention is better than Cure"! For this sentiment expresses in brief, yet terse, language the whole duty of this department. That "knowledge is power" is particularly applicable in matters pertaining to public health, for by it we are able to keep under control epidemic diseases. But to successfully do so there must be the intelligent co-operation of the public. Hence it is imperative that the Board of Health should inform the public of these facts regularly, and instruct them in the methods of preventing the development of such diseases in the community. Through the knowledge that malaria is transmitted *only* by a particular genus of mosquito certain communities have eradicated this serious affection from their midst. In like manner all preventable diseases can be eradicated through the knowledge of the ways and means of their development. It is therefore the chief duty of the Board of Health to impart this knowledge to the public. Legislation for quarantine, isolation, fumigation, etc., in infectious diseases, is only necessary to protect the general public from the ignorant and wilful citizen who does not know, or will not heed, the rights of every community to protection from epidemic diseases. The person who knows how contagious diseases are spread requires no law to control him, unless he wilfully offends against the natural law. What a magnificent opportunity is available for the promulgation of these great broad principles in the rapidly developing brain of the High School student.

To successfully combat contagious diseases the Board of Health must be constantly on the alert to detect the earliest evidence of their appearance in a

community, and this can only be accomplished in a laboratory equipped for such purposes. For example, the routine bacteriological examination of the milk supply of the town is the only way to determine its cleanliness, and freedom from pathogenic bacteria; the routine bacteriological examination of swabs from all sore throats is the only way to detect the initial development of Diphtheria, etc., etc. It is not necessary to go to any great expense in this line. All that is required is a good practical laboratory in which the daily routine work can be done, such as milk examinations, bacteriological examinations of swabs from sore throats, microscopic examinations for tuberculosis, and typhoid fever examinations. The more complicated examinations would still be done in the State Hygienic Laboratory. In the smaller towns where there is a High School, the establishment of the laboratory in connection therewith would prove an invaluable adjunct to such schools, and would reduce the running expenses of the laboratory to a minimum, just as the locating of the State Laboratory in the University is an immense saving of expense to the State.

In the case of small communities good practical results are now being obtained by two or three clubbing together and establishing one central laboratory at which the work can be done.

Dr. Wilbur A. Sawyer, Director of the State Hygienic Laboratory, has very kindly prepared a list of things necessary for the equipment of such a laboratory as has been outlined in this paper, and Messrs. Bausch and Lomb have on exhibition, amongst other exhibits, the equipment just referred to.

Referring again briefly to the question of expense it might be well to mention that careful estimation by competent authorities state that very efficient

results are obtainable at an expense of fifty cents per capita per annum, an exceedingly reasonable outlay for the benefits accruing.

In closing permit me to briefly epitomize the salient points discussed:—

(1). In the first place I desire to emphasize the point that the Health Department of today is the center from which is being constantly disseminated the practical knowledge of *how to prevent* the development of epidemic diseases.

(2). That the prevention of epidemic diseases is entirely proportionate to the practical equipment and proper fi-

nancial support given the Health Department.

(3). That the lamentable death rate from preventable diseases is a much worse scourge to the nation than any epidemic and specially demands the proper equipment of a modern Department of Health in the smaller towns and rural communities of the State.

(4). That the rational and economic value of the Department of Health in said communities is in actuality the INSURING of the lives of the people against sickness and death on communal principles, and calls for the heartiest co-operation of the governing body of the towns.



SANTA BARBARA'S MUNICIPAL WATER TUNNEL

LEE M. HYDE, SUPERVISING ENGINEER

Santa Barbara's municipal water tunnel, now nearing completion, is the first step of a gigantic project, which, when completed, will supply the wants of the city for all time, place under irrigation a large area of adjacent fertile district and allow the development of about 5000 horse power of electric energy.

The peculiar topographical conditions surrounding Santa Barbara have presented difficult barriers to water development and have demanded expensive and drastic treatment for solution. Paralleling the coast for a distance of 75 miles is the Santa Ynez range of mountains, leaving between it and the ocean a narrow strip of tillable lands. This range at the crest has an average height of from 3500 to 4000 feet elevation, but on account of the steep slope southward affords a very small area of water shed. The creeks are in consequence short, having very little summer flow and on

account of their severe grades prohibit reservoirs for empounding winter flood waters.

However, the early water supply was gained by diverting water from two creeks north of the city and later by driving a tunnel 5000 feet into the Santa Ynez range. This first tunnel is located about four miles west of the tunnel now under construction and was projected merely for the purpose of developing water in the Santa Ynez mountains. During construction the constant tapping of new water strata maintained a very good flow, but as soon as work ceased the saturative power of the formation was reduced to a small normal output which would soon be insufficient to meet the city's needs. Moreover, the lowering of the water plain in the mountain depleted the surface flow and the city was soon confronted with legal complications

brought by riparian owners on the creeks affected.

It was at this time that public officials, realizing that the city's growth was being jeopardized by an insufficient water supply, called into consultation Mr. J. B. Lippincott of Los Angeles, who has since been consulting engineer on Santa Barbara's water supply. The result of Mr. Lippincott's investigation was the acquiring of two reservoir sites in the upper Santa Ynez river basin below a water-shed of 210 square miles, the rights of way for a tunnel through the Santa Ynez mountains and the purchasing of power plant locations immediately north of the city.

The city immediately prepared for the construction of the tunnel, 19,560 feet in length, and contracts were let, in accordance with the provisions of the city charter. The contractors drove a little less than 50 per cent of the tunnel and were then forced to relinquish their contracts by the city Water Commissioners and Council. Their inability to properly prosecute the work was partially the result of adverse conditions of formation, gas and water encountered, which had not been given sufficient weight in preparing their estimates, but for the most part was the direct result of inefficient equipment.

For economical and rapid progress there must exist a high state of organization, both as to equipment and labor forces, and to this end the best of mechanical appliances should be purchased and duplicate plants installed, to eliminate delays from breakdowns of machinery. Such delays are expensive and have a discouraging effect on the workmen. To secure and retain the most energetic and skilled workmen, the camp should provide clean boarding houses, comfortable and sanitary quarters and good change rooms. The average con-

tractor to a large extent disregards these important features and in consequence is suffering delays from mechanical trouble and employing continually a floating population; a condition I consider expensive to him and in case of the non-fulfillment of his contract an added cost to the work.

Underground conditions are varied and unknown and for this reason are difficult to estimate. If the contractor should include contingencies that do not exist the work is being overpaid and on the other hand if the work is underestimated the contractor will complete the economical portion of the tunnel, and when his contract price and organization will not justify further prosecution of the work, he will force the city into legal complications or an amicable settlement and leave the more expensive portion to drive.

In my judgment no individual corporation or municipality should allow contracts on tunnel work. The city after taking over the work was for some time occupied in the installation of equipment both surface and underground and also remodeling and adding to the camp quarters. On the north portion of the tunnel poor ventilation had resulted in a fungus growth vigorously attacking the timbers, causing dry rot, and it was necessary to immediately line with concrete about 2600 feet. The timbers, in a great many places where heavy ground was being supported, were dangerously weak and great care was necessary to protect the workmen as well as the tunnel. In certain portions, smaller sets, reinforced by sprags, were put in and the weakened 8 in. x 8 in. sets removed. In many places it was also necessary to center-post the caps. Under ordinary conditions the original lagging was not removed, although we had many places where the fungus had caused such a

severe rot that the ground had broken through. In these places the lagging was replaced, and such additional timbering done as was necessary to withstand the ground weight during concreting.

The tunnel section is six feet wide at the bottom, four feet six inches wide at the top and seven feet high in the clear. It can be seen from the section of the bore that the concrete forms required a design occupying as little space as possible. The forms consisted of steel ribs placed on five-foot centers which supported 2 in. lagging. These ribs were made of four-inch channel steel with $1\frac{1}{2}$ in. web and were bent to conform with the tunnel section, being cut in two in the center of the arch and the two halves joined together by an iron strap and four bolts. Form setting and concreting very closely followed the timber repair. The steel ribs were set on wooden foot blocks and at the bottom were braced from the track rails. They also had additional braces at the spring line and arch center, only these braces were to the rib and back of the tunnel. Before the forms were set a trench was excavated on each side of the tunnel to solid formation for the foundation. The width of this excavation depended on the thickness of wall to be placed, although it was always from 6 inches to two feet wider than the wall.

When ready for concrete the bottom board behind the steel rib was not placed lower than the grade line of the tunnel floor. This allowed the concrete to fill the foundation excavation outside of the forms. The concrete was delivered to the shovelers in a specially designed water-tight galvanized iron box, built on a flat car. This box was 3 feet wide, 14 inches deep and 9 feet long with an outward slope at each end of 1 to 1, which facilitated shoveling. This

car also was used to remove the foundation trench cleanings, being hosed out before again filling with concrete. After the foundation was in the walls were carried up to a point that left about 14 inches of key. Then the lagging was placed over the arch and the key of five feet in length rammed from the end. A stiffer mix of concrete was used in the key than the walls. The average thickness of concrete lining was from 6 to 8 inches although in some of the loose or swelling formations the lining was heavily reinforced with steel and had a thickness of 12 to 20 inches. It was in these sections and where temporary sets were used that center posts and sprags were placed.

In order to get a good uniform thickness of lining, it was necessary to take out sets of 10 in. x 10 in. and 12 in. x 12 in. or trim them down to one-half or even one-third the original size. The sprags were placed above the cut to be made and supported the weight until the weakened portions could be covered with concrete. If necessary, these sprags could be concreted in and removed after the forms were taken down. Considerable precaution was taken when concreting a section where the water inflow was a perfect rainstorm.

We have concreted sections where the flow of water in five feet of tunnel was 25 or 30 inches. In these places wood strips of one-half or one inch in thickness were nailed to the lagging of the timbers and then covered with sheets of tin. This tin would entirely cover the section and the water was conveyed down the sides to the foundation trench. Here pipes were placed to carry the water through concrete wall. Ordinarily, a hole was cut through the timber lagging and the pipe placed so the intake was on the outside. Then a rich concrete or cement filled the trench

above the tin and forced the water through the pipes.

The average cost of placing 4614 feet of concrete lining in the north portion of the tunnel was \$9.79 per foot. This included a teaming charge from Santa Barbara to the north portal of \$3.75 per barrel of cement and \$28.12 per M on lumber. Gravel from the Santa Ynez river bed was hauled about three-quarters of a mile. The divisions of cost were as follows:

Administration and labor.	\$4.63
Cement	3.64
Forms18
Sand and gravel.....	.24
Miscellaneous supplies ...	1.10

Total \$9.79

All tunnels present some peculiar and particularly adverse conditions on account of gases, water, loose formations or swelling ground. Santa Barbara's tunnel has been no exception to this rule and has presented many expensive and difficult problems.

The Santa Ynez range generally is a highly stratified shale and sandstone alternating from one to the other in layers of a few feet to several hundred feet in thickness. The tunnel attack is at a strike and dip, ranging from 75 to 85 degrees. The formation at contact points is ordinarily quite shattered and this loose condition is aggravated in water-bearing sections. When the north portion had been driven to a depth of 4800 feet from the portal, a highly inflammable gas in large quantities was encountered. This gas section extended for a continuous distance of 1300 feet beyond station 48 + 00. The formation for the first 700 feet was shale, followed by 400 feet of oil sand. Here the formation was badly faulted at its contact with the shale, which was the formation to the end of the gas section.

The quantity of gas at first was not alarming, although as a safeguard against accident, safety lamps were used to test the heading after each blast. Small accumulations of gas located in the higher portions of the tunnel would then be burned out by touching them off with a torch. This done, the seepages would be lighted and if the inflow was sufficient would maintain a constant flame during the next shift, being extinguished by the next blast in the heading. As the heading neared the oil sand, gas was encountered in larger quantities, and finally when this formation was opened up a large amount of gas accumulated in the tunnel immediately following the blast and was accidentally exploded by the workmen. The force of the explosion was terrific and those not severely burned were hurled along the tunnel. Besides one killed, all the men were seriously injured. This was an exceptionally large quantity of gas, being about 25,000 cubic feet and had been released by opening up five feet of ground in the heading. It was not the seepages of gas in the tunnel that gave trouble, but the unknown quantity that was released by advancing the heading.

To guard against and safely dispose of this unknown inflow, Mr. Lippincott and the writer placed a system of electric arcs in the tunnel which were used to ignite the gas after firing a round in the heading. The arcs were specially made, being designed to withstand the concussion of the blasts and explosion of gas. When the round was ready to fire these arcs were placed in high points along the tunnel about 200 feet apart, the first one being located about 150 feet back of the heading. The round was then fired and the crew retired to the portal. A fire boss and helper then took charge of the tunnel and four hours were consumed in testing before the

next heading crew went on shift. The fire boss waited for about 30 minutes after the blast before turning an electric current into the arcs from an outside switch. This wait allowed a better chance of gas removal by the blowers which were always reversed to exhaust from the heading after blasts. An ameter was used at the switch to indicate whether the arcs responded or not and all the arcs were connected in series. After obtaining results of arcing from the portal, the fire boss and helper advanced to another arcing station 3500 feet from the portal. Here the electricity was again turned into the arc circuit. If there was no gas explosion, the fire boss with a safety lamp tested the entire tunnel ahead. If no large pockets were discovered he returned to the station where he again switched the electricity through the arcs. This time with the arcs burning he returned to the heading and placed torches at intervals of 100 feet through the gas section which were kept burning during the next shift.

Ordinarily the muck pile would burn like coal for some time and on one occasion was ablaze for fourteen hours. Drilling and firing a round of holes was often quite spectacular and required a great deal of care. As soon as the hole was drilled the gas from it would be lighted, sustaining a good-sized flame. I have seen as high as six out of eight holes on the top round burning like blow torches. Before loading a round the holes had to be cooled. For this purpose two lines of water and two of air, each under 100 pounds pressure, were turned into them. This extinguished the flame and as soon as the accumulation of gas reached a point twenty or thirty feet back of the breast it was exploded and then immediately put out at the holes again by the air and water. This operation was repeated until the holes were

cooled sufficiently to load and were then immediately fired. Driving through the gas section using the sparking devices was comparatively safe and not very expensive. Two heading shifts were maintained and aside from the two four-hour periods of fire boss shifts, the work was uninterrupted.

The north portions of the tunnel required timber for about 71 per cent of its total length and although spiling and breastboards were necessary in a great many places, most of the timbered sections offered no particularly severe problems on account of the absence of water. Good average progress was maintained by city force account during the entire work, and one very good record was made when the heading was advanced 337 feet in thirty days by two drilling and three mucking shifts. About 48 per cent. was timbered.

After passing through the gas section, water was continually encountered until at station 69 + 07 the inflow was taxing to their capacity the pumps and water column. This meant the installation of larger pumping equipment or abandonment of the tunnel. As the distance to be driven did not justify the expense and moreover could be easily accomplished from the southside, the latter course was followed. Before abandonment the tunnel was concreted in sections where the ground was loose and heavy. The equipment was then transferred to the south portion of the tunnel and all work has been prosecuted from this end since.

The cost of driving 2779 feet of the north portion from station 41 + 28 to station 69 + 07 was \$25.55 per foot, including the cost of timbering 1736 feet. The distribution of this cost per foot was as follows:

Administration	\$ 1.68
Labor	10.90
Power	3.81
Explosives	1.39
Timber	2.25
Track and pipe	1.76
Miscellaneous supplies . .	2.94
Drill parts62
Bonus20

—

Total \$25.55

The south portion of the tunnel differs very little in formation from the north, only larger bodies of sandstone have been penetrated. The sandstone is crevicy and large water courses have been opened up in this formation. This blocky ground is the saturated portion of the mountain and the intervening shale bodies act as the sides of what might be termed vertical reservoirs. The average flow for the past two years has been from 350 to 400 miners inches.

In passing through sandstone, particularly after the tunnel had gained a depth of about 1000 feet vertically from the surface, the pressure of water in drilled holes has at times been very severe. Instances where drill steel was forced tight against the machine, requiring two or three men with Stillson wrenches to release it from the chuck, were frequent, and jets of water, shooting down the tunnel in a horizontal line for a distance of from 25 to 75 feet are not uncommon. Some of the main crevices yielded a flow when first tapped of from 75 to 150 miners inches of water and one main water course released a flow of 350 miners inches. This drained down rapidly and within a week had diminished to about one-half this volume.

In driving from one point of contact to the other in sandstone the water follows the heading to a large extent and is a general handicap to the work. In drilling rounds, extra holes are required to

release the pressure of water from the ones to be loaded. Even then it is necessary to load the holes by inserting stick after stick without tamping and then wedging at the collar. Mucking and track laying is also a task on account of the shifting sand which collects along the floor of the tunnel and over the rails for hundreds of feet back of the heading. All of the large water strikes were made in loose caving formation and greatly increased the difficulties of timbering problems. Through these sections spilling was necessary and in a great many places breast works.

The large volume of water constantly flowing through the tunnel has had a severe effect on transportation of muck trains, as the track is always covered with water from eight to twelve inches or more in depth. It is difficult to do repair work on the track and besides floaters are being constantly encountered causing wrecks. The depth of water is also a hardship on the motor cars, causing shorts and grounds in the fields, armatures, resistance and wiring, which have to be continually repaired. Water has been the most embarrassing feature of the construction. However, good progress has been maintained, the heading having been advanced 439 feet during one period of thirty days. The average progress by city force account in the last 4800 feet being about 275 feet per month at a cost of \$26.16 per foot.

On April 7th of this year, one of the timbered sections caved at a point 7360 feet from the portal. The total collapse of the entire string of timbers 33 feet in length, occupied but a short time and the workmen at the heading, 4500 feet beyond, had barely room to escape by the time they reached the caved portion. Special mention is due Frank Fizer for his presence of mind and heroic action in notifying the workmen of their dang-

er. Mr. Fizer was acting as a motorman and discovered the cave on his outward trip. On account of breaking a trolley pole it was necessary for him to wade through water to the heading. A short time after the crew reached the portal side the tunnel filled with muck. The total water flow of the tunnel at this time was 395 inches, of which about 300 inches was coming into the tunnel at the heading side of the cave. This water was immediately shut off by the impervious nature of the muck pile, which was mostly a mixture of soft clay and running shale. In a few hours the large volume of water had entirely filled the tunnel between the cave and heading and then, on account of the small displacement necessary to resaturate, the formation above, gained head rapidly and soon exerted a pressure against the muck pile. This carried the muck pile toward the portal of the tunnel and forced the workmen back. The water then would gain a greater pressure which would again overcome the resistance of this muck pile and move it down the tunnel. This process continued until the tunnel was filled with muck for a distance of 437 feet at which point further action was blocked by two bulkheads, a temporary wooden one to protect the workmen while the permanent concrete bulkhead was placed.

By placing a pressure guage on the compressor air line, some idea of the pressure was gained during early stages, but on account of the line giving way few readings were obtained. However, these showed a gain from 19 pounds to 122 pounds per square inch in 14 hours.

A side drift was then projected around the caved and filled portion of the tunnel and opposite the soft caved stratum was one hundred feet distant. At this point 12 in. x 12 in. timbers with four and six inch spiling and 3 in. x 12 in.

breast boards were used. It was necessary to hold every inch of ground in place as a slight movement might allow the terrific water pressure in the main tunnel to cause a general movement of the loose muddy formation, separating the two bores, and in this case the muck could very quickly slide into the side drift and duplicate the muck shifting process following the cave. The progress through this section was very slow but the results obtained were most satisfactory. However, it was necessary to concrete this timbered section immediately after passing through the ground to insure safety.

The side drift was then advanced and turned toward the main tunnel again so the approach was at an angle of 41 degrees. The side drift is 785 feet in length, some of this distance being necessary to gain a location in the old tunnel where the formation was considered solid enough to tap through. When the side drift had gained a location that left 18 feet of wall between the two tunnels, the heading was stopped and preparations made for tapping the main tunnel. The formation was a tight and tough slate shale and was practically dry, but owing to its brittle nature was flaking off with loud, quick reports for the last three days before the tap on account of the water pressure which was probably 500 pounds to the square inch. In order that the attack might be at right angles with the main tunnel, a cross cut of seven feet in length, carrying a three foot six inch bench, was made. The tapping holes, eleven feet long, were drilled in this face. Four holes were drilled from a cross bar. These were collared about twenty inches apart and brought together at the bottom. A pilot hole was kept two feet in advance of these four to indicate the exact location of the main tunnel rib. When this was

determined the holes then about 12 inches from the rib were charged with fifty pounds of No. 40 per cent powder and fired. Fifty foot fuse was used which allowed plenty of time for the shift to get out of the tunnel. The results of the blast were particularly successful, the water being gradually reduced. The connection of the side drift with the main tunnel was then made and the clearing of the main tunnel to the heading started. The main tunnel has suffered somewhat on account of the action of the long storage of water, the full extent of which has not yet been determined.

Timbered and untimbered sections have been affected and it will probably be sixty days before the heading is reached. It is expected that within a short time the remaining 765 feet of tunnel can be driven, after this has been accomplished.

The cost of driving 6215 feet in the south portion from station 50 and 70 to station 118 and 85 was \$26.16 per foot, including the cost of timbering 1075 feet. The distribution of this cost was as follows:

Administration	\$ 1.55
Labor	12.15

Power	2.98
Explosives	2.35
Timber	57
Track & Pipe	1.41
Miscellaneous supplies	3.30
Drill parts	1.32
Bonus53

With the same determination that characterized the heroic effort of the people in first launching this project, the citizens of Santa Barbara have met and overcome adverse conditions in their tunnel. Notwithstanding these conditions which have caused added expense, the tunnel, besides eliminating water shortage in the city, has been a wonderful financial success. The revenue derived from the sale of water has not only met the interest and sinking fund charges on the bond issues, but has also paid for the large extensions in the mains and furnished free about \$15,000 worth of water for municipal purposes. During this time the rates have also been greatly reduced.

Santa Barbara's cheap water and power in the near future I believe will be a revelation in the municipal ownership of these two essential public utilities.



THE ELECTRICAL FIRE HAZARD

BY C. W. MITCHELL, INSPECTING ENGINEER, BOARD OF FIRE
UNDERWRITERS OF THE PACIFIC

Of all the forms of energy of which we have knowledge, that which is made use of most is electricity. From it we get heat, light and power. But while electricity is benefitting mankind more than any other form of energy, it is at the same time attended by a proportionately larger hazard as regards both life and property.

It would seem that nearly all of those killed directly by electricity are among the men engaged in some branch of the electrical industry. It is doubtless true that many of these lose their lives because of carelessness, developed by what we might term "familiarity." Nevertheless, the majority of people have a wholesome respect for electricity in so

far as the hazard to life is concerned; but as regards the fire hazard, that respect, with few exceptions, seems to be entirely lacking, and in nearly every case this is due to ignorance. The average man knows that when he turns on a switch in his house the lights will burn, but he does not know that in the walls may be concealed some defective wiring that may start a fire any time the switch is turned on. He may want more light in certain rooms, and replaces the lamps with larger ones. Perhaps this causes the fuses to blow. These fuses were put in as a protection against overloading the circuits; but he does not realize this and puts a nail or hairpin in place of the blown fuse. What he desires is light, that he may see with the corporeal eye; what he needs is light to see with the mental eye that he has literally tied down the safety valve. This is but one of the many ways in which the layman may increase the fire hazard of electricity.

New instruments and devices for utilizing electricity are being brought out almost daily. Some of them are not very hazardous, while others are very much so. Consider, for example, the electric flat iron. A good iron properly installed and properly used is undoubtedly a blessing but there is a hazard connected with it that makes imperative the utmost carefulness, and calls for the installation of all available safeguards such as proper fusing, ample carrying capacity for circuits and pilot lights which will indicate whether or not the current is turned on. The property loss due to fires started by electric irons is enormous. The most recent data on this which I have, is for the year from April 1st, 1906, to April 1st, 1907, when for a total of only 14 fires reported, the loss was over one and one quarter millions of dollars. Since then the number

of irons in use has increased greatly, and a large number of fires are caused by them.

It is not only essential that the wiring and apparatus should be properly installed in the beginning, but it is also necessary to take the proper care of an installation at all times afterwards. However well an equipment may be installed, its safety may easily be impaired in a great many ways. For example, additions may be improperly made, circuits may be overloaded, fuses may be replaced by those of too great capacity, lamp cord may be used in ways other than those for which it was intended, and in innumerable other ways the wiring system may be weakened.

Naturally the question arises as to the best way in which to reduce the hazard. This can only be accomplished by thorough and efficient inspections and the education of the people. In every municipality of any size there is a department of electricity with one or more inspectors, who inspect electrical work as it is being installed; and they should be given every facility, and their recommendations carried out forthwith.

The generally accepted standard for the installation of electrical wiring and apparatus is what is known as the National Electrical Code. The rules of the Code are framed by the representatives of various electrical and other interested associations, and while the Code may not be perfect, yet it is the best obtainable and is the result of years of work of trained and experienced men. With a few exceptions, the rules of the Code are sufficient for any city, and the growing tendency of municipal inspection department to frame a great many rules of their own is to be avoided, especially when such rules are in conflict with those of the Code. A uniform set of rules is what is desired, and then a uniform in-

terpretation of those rules. We are approaching the latter through associations of inspectors, and in this connection I would earnestly urge every municipal inspector to join the association recently organized in this state.

One of the rules which has been made by some city electricians is that of requiring, in at least a certain portion of the city, that all electrical wiring be done in metal conduit. From the worker's standpoint this is an ideal method of installation; but if the fire hazard be taken into consideration, it is not as safe a way as some others. The arguments are often advanced that it is possible to obtain a better class of work where conduit is used; but my experience has been that conduit construction is subject to just as much abuse, both during and after installation, as are other methods, and after the wires are drawn into the conduit the inspector cannot determine definitely their condition.

One of the rules of the Code most often violated is that which requires the installation of fuses in an accessible place, as near as possible to the point where the wires enter building. Fuses so installed afford protection for all of the wires and apparatus within the building. Quite often the service wires run for some distance through the building before the fuses are installed. That part of the wiring which is between the point where the wires enter the building and the fuses is without protection and trouble, such as a short circuit, on a ground, occurring in this portion of the wiring would be very apt to set fire to the insulation on the wires and this fire be communicated to the building. Or the wire itself might be fused and the hot metal falling on inflammable material, set fire to it. Also that portion of the wiring is without protection against abnormal currents such as would be caused by a high

tension line dropping down on the service wires. These are not mere suppositions but actual cases are on record where fires have occurred in the ways described above. And they have occurred not only in open or "knob and tube" work, but also where the wires were in conduit.

In order to prevent the theft of current the power companies have required that all service wires be run in conduit. The same rule regarding the installation of fuses applies to this class of work as well. The conduit should not be run for any distance through the building without first installing the fuses at the point where the conduit enters. If the outside connections to the service conduit are not opposite a place inside where it would be desirable to place the fuses then the conduit should be run on the outside of the building to a point just opposite the one where the fuses are located inside and the service conduit terminate just inside the wall. By having the conduit exposed in this manner any fire resulting from electrical disturbances within it could be more readily seen and extinguished before gaining much headway. Some architects and owners have protested against having the conduit exposed but if they could realize fully the advantage to be gained by thus lessening the danger of fire it is probable that they would make no further objections.

The municipal inspectors should have the right and authority to inspect all installations, not only while they are being installed, but when they are completed, and it should be his duty to inspect practically all equipments, both old and new and require that all defects be remedied. And his authority should not be limited to that part of the electrical wiring within buildings: but should extend to all wiring and apparatus upon the streets, or in any part of the city: for it

is in the outside work that the greatest hazard sometimes exists. Trouble starting within a building would probably be confined to that building: but trouble on the outside might be communicated to several buildings.

The use within a building of current taken from a grounded street railway circuit is especially hazardous and should not be permitted. One side of the circuit is normally grounded and it is only necessary to have but one accidental contact between any part of the wiring of the system and a gas or water pipe or any part of the building which is grounded in order to establish current flow and a resulting "burn out" or fire. Also the fluctuations of voltage on trolley circuits and consequent sudden increases of current flow makes proper fusing improbable.

The coming of the amateur wireless operator has brought to light another hazard which did not exist until a very short time ago. No power line should be connected to a wireless station unless the connection be made to a motor generator set. Where the connection is made to a transformer there is the possibility that this and even other transformers on the system may be broken down by the high voltage reactions caused by the wireless apparatus. Power lines along the street should not be neglected. If not properly installed and maintained, they are apt to be an endless source of trouble. Especial attention should be

paid to the wires upon the sides and roofs of buildings. This applies not only to electric light and power wires, but to all others such as telephone and telegraph. While these may not be hazardous in themselves, yet they are apt to be made so by contact with others, which are; and in case of fire they may greatly hinder the work of firemen.

Too much cannot be said against the amateur electrician who knows how to make the lights burn, but does not know the rudiments of the rules of safety. The proud father who encourages his boy to tinker should be discouraged.

These are some of the more important things which should be looked after in every municipality. I will mention but one more—one which has no real hazard connected with it, but which is closely allied to all that has to do with fires, and that is the fire alarm system. Not infrequently this system receives too little care. Large sums are spent for apparatus with which to fight fires, and but little attention is paid to the means of calling that apparatus to the fires. For best results the time to fight a fire is when it begins: all big fires start by being little fires: but that may not be possible in all cases if delays in transmitting the alarms are apt to occur, due to a faulty signaling system. It should be remembered by all who have anything to do with such things, that for fire alarm systems the best that is obtainable is not good enough.



SHOULD CALIFORNIA MUNICIPALITIES CONFER UPON THE RAILROAD COMMISSION THEIR POWERS OVER PUBLIC UTILITIES?

MAX THELAN, ATTORNEY FOR AND MEMBER OF THE RAILROAD COMMISSION OF CALIFORNIA

In this paper I shall consider briefly law as I believe it to be, defining the relationship between the Railroad Com-
two subjects: (a) I shall first state the

mission and the incorporated cities and towns of the state with reference to the regulation and control of public utilities; (b) I shall then consider the arguments for and against the retention of their powers by the incorporated cities and towns.

The Public Utilities Act was passed under the provisions of Section 23 of Article XII of the Constitution of this state as amended on October 10, 1911. This section provides in effect that the legislature shall have the right to confer upon the Railroad Commission powers of regulation and control over public utilities as defined in the section and including all kinds of railroad companies, express companies, telephone and telegraph companies, heat, light, water and power companies, wharfingers and warehousemen, but that the incorporated cities and towns of the state should retain such powers of control over public utilities as might be invested in them on the effective date of such legislation as might be enacted. The section further provides that legislation shall be enacted under which the incorporated cities and towns, if they so desire, may vote into the Railroad Commission their powers over public utilities. The same legislature passed the Public Utilities Act accordingly also passed the Hewitt Elections Act, providing the method by which the incorporated cities and towns may, if they so desire, vote into the Railroad Commission their powers over public utilities.

It is not necessary here to go into the reasons why it was provided that the cities and towns should retain such powers over utilities as were vested in them. The fact is, that without such provisions it would have been impossible to have secured the submission to the voters of the state of the necessary constitutional amendment, and there is serious doubt

as to whether such amendment, even if submitted, would have been ratified.

The Public Utilities Act confers upon the Railroad Commission broad powers of control over public utilities, including the power to fix rates, to regulate service, equipment, facilities and extensions and to control the issues of stocks, bonds and other securities. These broad powers vest in the Railroad Commission as to all utilities except those which are owned and operated by municipalities or other public authorities and except in so far as the various incorporated cities and towns of the state had vested in them on March 23, 1912, power over public utilities.

To ascertain the powers so vested in any given incorporated city or town, it is necessary to examine in each case the constitution and statutes, and particularly such freeholders' charter or other charter as such city or town may have. Under the Constitution, all the incorporated cities and towns of the state may fix the rates for light, water, power, heat, transportation, telephone service and other means of communication, and may exercise police powers over public utilities. These police powers include principally the use of the *streets* in matters such as construction on or under or across them, the control over overhead wires and the regulation of the speed of trains with city limits. The Constitution confers no power upon municipalities, except under the police power, over service, facilities and extensions, and such power, if it exists, can be found only in such freeholders' charter or other charter as the municipality affected may have.

This brings me to the main question which I desire to consider. Should our incorporated cities and towns retain or surrender their power over public utilities? At the outset I desire to define

the Commission's position on this question. The Commission will not exert itself in any way to induce any city or town to surrender any of its powers. The Commission is ready at all times to give to the public all facts in its possession bearing on the question and to state the arguments for and against such action as those arguments present themselves to the Commission. In each instance, however, the Commission desires to leave the solution of the problem entirely to the sound judgment and discretion of the community affected. The citizens should in each instance decide this question for themselves and no one should undertake to decide it for them.

I shall now proceed to state as fairly as I can the arguments, first for and then against the retention of their powers by our incorporated cities and towns.

In the first place, a local body is generally in closer touch with local conditions than a state body can be. Assuming an equal degree of intelligence and devotion to duty in both bodies, the local body will be more likely to know the abuses, particularly in small matters, affecting public utilities. Again, the advantage in the matter of the time within which initial relief may be secured will often rest with the local body, especially as to such important matters as demand the filing of formal pleadings before the Railroad Commission and the formal hearing of cases. While the Commission has endeavored to establish a record for speed in the setting and disposition of cases, it must necessarily happen, from the large number of cases before it, that a delay of several weeks will often occur before a case which is ready for trial can be heard. Two formal cases have come before the Commission from cities which have voted their power into the Commission. In the first case, the City of Palo Alto on

July 23, 1912, filed with this Commission a formal complaint against the Palo Alto Gas Company, alleging that the rates for gas are too high and asking the Commission to establish just and reasonable rates. The defendant filed objections to the form of complaint but these objections were overruled and on August 6, 1912, the Commission called upon the defendant to answer the complaint. In the regular course of business this answer would have come in within ten days and the case would have been ready to be set. The gas company, however, secured a temporary restraining order from the superior court of Santa Clara County, and the question of whether this order should be permanent will be argued before the superior court of that county on the 25th of this month. In the second case, the town of Willits on August 15, 1912, filed with this Commission a complaint against the Willits Water and Power Company, alleging that the rates for water supplied to the consumers in Willits are excessive and asking this Commission to establish just and reasonable rates. On September 12, 1912, the defendant filed its answer and the case is now ready to be heard.

Since March 23, 1912, 41 formal cases and 223 formal applications have been filed with this Commission. Of this number, the Commission has rendered its decision in 10 cases and 153 applications. In most of the other cases and applications the hearing has been held. The decisions in these cases are generally awaiting the filing of additional information or the submission of briefs. In addition to these formal matters, the Commission has handled 360 informal complaints between March 23, 1912, and September 14, 1912. Informal complaints usually take the form of letters. After they have been drawn

to the attention of the Commission they can generally be disposed of as promptly by this Commission as by local bodies.

Finally, while in my opinion, local pride is not a proper argument one way or the other in this matter, it will undoubtedly play a strong part in the solution by the cities of the question now before us.

I desire to state now some of the chief arguments in favor of surrendering to the Commission the powers which we are considering. The first argument is naturally the better equipment of the Commission to perform this work. The Commission has thoroughly organized its work into six departments, with the necessary sub-divisions. These departments are as follows: office, legal, rate, engineering, statistics and accounts, and service. Each department consists of heads and subordinates selected because of their particular training to perform their work. The departments are subdivided in so far as necessary. For instance, the rate department, in addition to the rate expert, consists of assistant experts with particular knowledge as to railroad rates, both passenger and freight, express rates, telephone and telegraph rates and rates for heat, light and power. The engineering department, in addition to the chief engineer, consists of assistant engineers who have particular training with reference to railroads, hydraulics, gas and electrical companies and telephone and telegraph companies. The Commission has thus in its employment men of training on whom it calls whenever work in their department comes to the Commission. The cities of this state, with the exception of possibly the two largest, find it difficult to call to their service men of such training.

Again, the cost of regulation, and particularly of law suits, when undertaken

by the cities separately, is so great that none except the largest cities can afford to do the work with a reasonable approach to the thoroughness with which it should be done. Quite a number of the cities of this state have been compelled to permit injunction suits brought against them by public utilities to go by default or else to enter into compromises which they at the time themselves knew to be unjust to the cities because they did not have the funds to prosecute the cases. When the decisions of the Railroad Commission affecting the municipalities of the state are taken to court, the Commission's legal department handles them without charge to the community affected.

Again, local bodies are subject to the possibility of being biased in their decisions as to local utilities. The Railroad Commission and its employees owe their allegiance to the state as a whole and to a public policy which demands that the decisions of the Commission shall be just and fair not only to the public, but also to the utilities.

Again, most large utilities operate in territory both within and without the limits of incorporated cities and towns. Both the cities and the Commission find great difficulty in such cases in making the necessary segregation of property, income and operating expenses in matters affecting rates and service. The work could be performed with far greater ease and accuracy by a single body having jurisdiction over the entire system. Obviously, a city can not exercise jurisdiction over territory outside its limits. It is equally clear that over such territory the Railroad Commission has jurisdiction. The Railroad Commission, if given power by the cities, will have that unified control which to many persons seems desirable in these cases.

Finally, there is greater assurance of

finality in the decisions of the Commission and of speed in putting them into effect than is the case with decisions of our cities on the same questions. In decisions of local bodies it is possible for the utility affected to start in the superior court with an injunction and then to run the entire gamut of the courts with the attendant delays, which are only too well known to our people. The provisions of the Public Utilities Act have been drawn with considerable care for the purpose of securing certainty and speed, not only in the proceedings before the Commission, but also in the courts on review of the Commission's orders. On questions of fact, the decisions of the Commission are final. Parties desiring to do so may ask for a rehearing, and they must ask for such rehearing before they can go into court. In this way the Commission has an opportunity to remedy such errors as it may have made and in most cases to avoid litigation. If the utility is still dissatisfied, the remedy is a writ of review directly to the State supreme court. No new evidence can be introduced before that court. The matter is decided solely on the record made before the Commission. If it is desired to appeal from the decision of the State supreme court, the appeal lies directly to the United States supreme court, so that the matter may be finally settled with the intervention of only two courts. What I have said does not apply to foreign corporations, which still have the right to go to the Federal courts. When we bear in mind the unfortunate experiences which our cities have had in

the courts, growing out of their utility regulation, I think we must admit that the advantage in this respect lies entirely with the procedure before the Railroad Commission.

I believe that I have now stated the chief arguments both for and against the retention by municipalities of their powers over public utilities. Those cities which elect to vote their power into the Commission will be served by the Commission to the very best of its ability. With the other cities the Commission will co-operate in so far as it can and will assist them in so far as is consistent with the performance of the work which under the Public Utilities Act the Commission must do. In this connection I will say that notwithstanding the possibilities of doubt as to certain powers as between the Railroad Commission and our cities, the relations between the Commission and the cities have been in all respects most cordial and I fully hope and expect that this condition will continue, entirely irrespective of whether the cities choose to confer their power upon the Commission.

Mutual assistance between the cities and the state will aid materially in a wise and just solution of the problems arising out of the relation between the public utilities and the public. There are no problems of greater importance to the public and none which affects more intimately the happiness and prosperity of the great mass of our people.

MAX THELAN,

*Attorney for and Member of State
Railroad Commission.*

THE DOCTRINE OF EXCESS CONDEMNATION

PERCY V. LONG, CITY ATTORNEY OF SAN FRANCISCO

Excess condemnation is the acquisition through condemnation proceedings by the governmental agency—for example, a city—of more land than is actually

needed for a public improvement, such as a boulevard, park, street, playground or civic center, in order to meet the expense of this improvement later by the sale or lease of the surplus.

This has been a familiar method for years in the cities of South America, on the Continent, and in Great Britain. By the application of this principle Paris built the Avenue de L'Opera, Vienna the Ringstrasse in 1857.

England's adoption of this doctrine in public improvements dates from the construction of the Garrick Street, London, in 1861. In this instance 72 per cent profit was realized through the sale of the surplus land. In 1876 Northumberland Avenue was improved according to this method, and the city made an actual profit of nearly \$600,000 over the cost of the land and its improvement.

The most notable English example of recent times is the completion of the Kingsway in 1905. This magnificent highway cuts through the most congested district of London, and passes through its great commercial centers. The cost was over twenty-five millions of dollars, and, according to the latest reports of the London County Council, it will involve no financial burden whatsoever to the taxpayers.

In the United States the idea of recoupment by the taking of more land than that actually needed for the particular improvement has seldom been resorted to before the last decade.

This reluctance to enforce the principle of excess condemnation in the United States is due to several reasons. The whole conception of property relations in this country is very different from that of Europe. For example, our real property system, under which land is held absolutely by the individual, subject only to the state under eminent domain, is practically unknown abroad. Both

courts and people are jealous of what they regard as private property rights, and will allow them to be invaded by condemnation for "public use" interpreted in its very narrowest sense.

The attempt to condemn more land than is absolutely needed for an improvement with the idea of meeting the cost through recoupment seems in the past to have been regarded with great suspicion, and not to have been held a "public use" by either the courts or the people. It is only the recently conceived idea of society as a growing, elastic institution, and of the necessity of allowing the governmental activities to change to meet the newer and broader human conditions and needs that has allowed this new idea of excess condemnation to take a foremost place in the movement for civic improvement.

Before proceeding to a closer examination of the merits and limitation of the doctrine, let us pause a moment to review the laws and statutes on the subject that have been enacted in the various states of the Union.

The first American act recognizing the principle was passed in Ohio in 1904, allowing excess condemnation in the case of public parks. This principle was further developed by the following amendment to the Ohio Constitution, passed September 3, 1912.

"Appropriation of Property for Public Use:—Any municipality may appropriate property for a public improvement, and may appropriate in excess in furtherance of that improvement; provided the bonds issued to pay for such excess are a lien only on the property so acquired for the improvement and the excess."

In 1905, an Act, similar to the Ohio Statute of 1904, was added to the code of Maryland. In 1906, Virginia enacted a more general law permitting the use

of the principle in acquiring land both for parks and for streets. A Pennsylvania Act of 1907 authorizes the acquisition of property within two hundred feet of any park, parkway, or public playground. All these Acts give the power to sell the unused land with building restrictions, a phase upon which I shall touch later in this paper. In 1907, the legislature of Connecticut went further still, giving a commission of the City of Hartford the power to sell the unused condemned land with or without reservations.

An amendment to the constitution of the State of New York has been approved by the legislature, and if again approved will be submitted to the people for their vote in November. This amendment expressly defines the taking of additional, adjoining, contiguous or neighboring property as a taking for a public use.

In Wisconsin, cities of the first class have at the present time the right to purchase excess land, but not to acquire it by condemnation proceedings. To remedy this defect a constitutional amendment is now pending before the legislature. The text of this resolution, a very similar one to that proposed in New York, 1911, is as follows:

"When private property shall be taken for a public use by a municipal corporation, additional adjoining or neighboring property may be taken under conditions to be prescribed by the legislature by general law. Property thus taken shall be deemed to be taken for public use."

Massachusetts, by her recent constitutional amendment of November, 1911, is the latest state to join this movement. This amendment states that the legislature may by special acts for the purpose of laying out, widening or relocating highways or streets, authorize the tak-

ing in fee by this commonwealth, or by a county, city or town, of more land and property than are needed for the actual construction of such highway or street; provided, however, that the land and property authorized to be taken are specified in the act and are no more in extent than would be sufficient for suitable building lots on both sides of such highway or street; and after so much of the land or property has been appropriated for such highway or streets as is needed therefor, may authorize the sale of the remainder for value with or without suitable restrictions.

It is significant of the change of public sentiment in this matter that this amendment was passed after the Supreme Court of the State had rendered a decision to the effect that the sale of surplus land to cover the cost of an improvement was not a "public use."

To date the above named states are the only ones to have given the doctrine serious consideration, but the object is well worth careful investigation in view of the rapidly growing cities of the Pacific Coast, and the opportunities yet offered us of developing wide-spread, permanent and at the same time inexpensive improvements through the operation of the principle of recoupment.

The principle of excess condemnation is economically correct. Just as the profits of the labor of an individual should redound to him, so in all justice the increment of value to land caused by the city's act in improving a portion of that land should inure to the City. It seems superfluous to add that a new street in the heart of a city widened, curbed, paved, sewerred and lighted, very greatly enhances the value of the land which fronts it.

In the center of our great American cities, a certain amount of reconstruction is necessary. The increasing de-

mands of business and of civic activity imperatively call for wider streets, increased traffic facilities, parks and public places. Under the present system of condemnation, such improvements are well-nigh impossible, or are only accomplished after years of delay and at a prohibitive cost. As mentioned before, the cities of Europe have long enjoyed the advantages of the principle of recoupment, with the result that they are in possession of wide avenues, beautiful parks and boulevards, at practically no cost to the city, whereas we Americans are content with the narrow, overcrowded streets that were constructed for business conditions of a generation or more ago.

By the application of this new principle, owners whose property is condemned receive the full market value for their property at the time of condemnation but not the improved value. The latter, representing a normal increase on an investment of the entire city, accrues to the city, thus relieving the indebtedness of the municipality for the improvement. Thus it will be seen that the proposed method of excess condemnation does not work an injustice upon property owners any more than does our present condemnation system.

There are two great evils of the present system, especially in the case of street widening in congested areas. One of these is a direct financial loss to the city, the other, the loss to the owner of the adjacent property.

With reference to the financial loss, the following experience of the City of New York with street work is typical of American city improvement at the present time.

A few years ago Livingston Street, in the Borough of Brooklyn, was widened from fifty to eighty feet, and in order to do so the city was obliged to acquire

thirty feet of property abutting on the southerly side of the street. The cost of this property, involving as it did the virtual destruction of all of the buildings and the reduction of the abutting lots from about 100 feet to 70 feet in depth, was very large. The legislature imposed this assessment upon the city at large. It cannot be doubted that after the widened street had been improved the value of the lots about seventy feet in depth fronting upon the new thoroughfare was almost, if not quite, as great as the full depth lots, with their improvements, before the street was widened. If the city could have bought all of the property, portions of which it was obliged to take, it could have financed the improvement very comfortably and would have recovered a large proportion of the expense, while now the widening of Livingston Street represents a debt of more than \$2,000,000, which has been borrowed for thirty years, and upon which it is necessary to provide interest and sinking fund every year.

Delancy Street was widened because it was needed as a thoroughfare for the approach of Williamsburg Bridge. The land, after it was widened, was worth very much more than the land on the side streets intersecting it. If the city had taken about one hundred feet more land than was required for the widening, the land could have been sold for a profit, the owners of the land so taken would have been saved excessive assessments, and the street would have been quickly improved with structures adapted to the new uses demanded by the new conditions. As it was, the property fronting on the street was assessed for the expense of the improvement, and the owners of the property were heavily burdened.

The loss to the adjacent property fol-

lows upon the application of our present method of condemnation.

When streets are widened, or new streets are cut through old parts of a city, irregular and small sized plots of land are left on either side totally unfit for improvement. There are streets in New York which have been widened for ten years, but whose frontage is desolate and unimproved. The small bits of land in separate ownership cannot be improved, and, as in the above cited case of Delancey Street, strips of land a hundred feet long, and in some cases less than ten feet wide, paralleling the street, are left undeveloped and untenanted. Thus the owners of the property, who have been forced to sell a portion of their holdings to the city, are unable to reap the benefit of the increased value of their land. If, on the other hand, the new method of recoupment had been employed, and the city had acquired approximately one hundred feet more than was taken, the surplus could have been sold to advantage, and would have been improved immediately by the erection of suitable structures.

Excess condemnation not only enables the city to make these improvements at practically no expense to the taxpayer; it insures the success of the improve-

ment by the proper treatment of the abutting property. The land sold under the recoupment plan should be disposed of with building restrictions, so that the street or park will be fronted by structures which will correspond to the general scheme, ensuring that uniformity of plan which adds so much to the modern cities of Europe and South America.

That there is one limitation, it is true, that it is unfitted for use in outlaying regions where the re-sale of abutting property might prove a long process, but its adaptability for use in the thickly settled and congested portions of our cities is undisputed.

To sum up in a sentence, then, excess condemnation implies, the city's right to profit by its own investments in preference to its exploitation by a few individuals; permanent benefit to the entire community with injustice to none; utilization of small and irregular plots which otherwise cannot be successfully treated; the development of the improvement instead of as a series of unrelated accidents. Excess condemnation is the first and essential step in city planning, and the reason in Europe of its unqualified success.



A COMPARISON OF THE METHODS AND EFFICIENCY OF MODERN EUROPEAN AND AMERICAN CITY GOVERNMENT

BY BEVERLY L. HODGHEAD, FORMER MAYOR OF BERKELEY

The American people have successfully worked out the problems of self-government, as they have arisen from time to time. They will eventually solve the problem of efficiency in municipal government, which is now upon us. Our

apparent tardiness in the development of a distinct American municipal administrative system must be attributed in part to the fact that the city problem is comparatively recent. It has become acute only during the past decade, coin-

cident with the phenomenal growth and expansion of urban communities, and the awakening of the people to the weakness and corruption in city governments and the inglorious methods of administration.

In the early history of the country the population was chiefly rural. Since the Civil War the drift of population has been towards the cities, so that now it is chiefly urban. The problem of municipal administration is, therefore, a new one in America, while it is old in Europe.

But if in comparing the efficiency of modern European and American administrations any advantage be found with the former, it is not an answer to point alone to their century of experience. It is true that complex problems of administration have arisen from our sudden and unprecedented growth, such as provision for water, light, heat, pure food, sanitation, sewage, drainage, transportation and means of communication, and generally for the health, comfort and convenience of our citizens, but this growth has been no less sudden and phenomenal and the problems no less acute in the large cities of Europe than in America, for during the last twenty years the growth of urban population has been as rapid there as in our country. The difference between the two classes of cities, however, when these conditions and problems arose, lay in the fact that the European city was able to bring to bear upon the solution of these problems a long experience and a well developed and effective system of municipal administration, possessing the confidence of the people, and to which they were willing to submit their new problems; while in America we had first to get rid of the political "boss" and the corruption in city councils. We had first to overcome the distrust of the peo-

ple in the integrity of their municipal officers and of their capacity for handling such new problems, and to establish some stable and effective system of administration.

In order to make some comparison of the methods and efficiency of the different systems of administration, we must first inquire in what essential particulars do they differ from each other. When the population was found in rural communities and villages and towns, the interests of the people were simple and the administration duties were light. The complex relations and diversified needs which arose from the extraordinary growth of modern cities brought with them the necessity for trained and experienced administrators. If the city is to supply its citizens not only with the public necessities but the comforts and conveniences of modern civilization, and become a part of the life of its people, it must widen its functions and extend its usefulness.

Keeping these purposes in view as the ultimate scope of the city's activities, we come to the question of methods of administration. The essential differences lie in the attitude of the people themselves towards the government, the method of selecting representatives in council, the character and extent of municipal functions, the charters or grants of municipal power under which these functions are discharged, the professional character of administrative officers, and their method of selection and permanence of tenure.

In most of the European cities the business of government is recognized as a science. It is treated as a profession, for which previous training and experience are essential. The officers who are to discharge the administrative duties must possess the training and expert skill which the importance and com-

plexity of the duties require. They are selected by appointment, and are chosen for their qualifications, and if efficient are retained for long terms of years, or for life. The municipal functions are as broad and comprehensive as are the needs of the city.

The German system combines the benefits derived from the aid of permanent expert or professional administrator acting in conjunction with a council of representative business men, who reflect public opinion. A purely expert government is likely to become bureaucratic; a purely non-expert government is likely to be inefficient. A judicious mingling of democracy and expert skill would seem to produce most beneficial results. The administration of a German city is probably the most systematic, thorough and business-like of any of the European cities. The German people are disposed to be thorough in everything they undertake. They have brought to bear upon the solution of municipal problems the same scientific, exhaustive and painstaking research which they have displayed in other fields of scientific effort. They have not had to combat the selfish greed of corrupt politicians. They have had only the problem of efficiency to solve. They have enlisted in this work the services of the most capable and representative business men, in whose integrity and capacity the people have confidence, and who, for that reason, they are more ready to trust with municipal enterprises. German cities are not as much concerned as we are about the forms of municipal charters. Of much greater importance are the qualifications and experience of the men who are to administer them, and the attitude of the people toward their public officials. The law of 1808, as modified by the Code of 1853, still forms the basis of the German municipal code. It contains no specific enu-

meration of powers, as found in American charters. The city, on the contrary, is authorized to do whatever may be necessary and advisable in the interests of its people, provided it is not contrary to law. The American city exercises only such powers as are granted, the German city such powers as are not prohibited.

The administrative organs of the German city government are the council and the magistrat. Contrary to the theory of the commission charter, which has found high favor in American cities, the council is large and its members are elected by districts. There are seventy-five members of the council which I witnessed in session in Glasgow. In some of the German cities the number is larger. Continuity is preserved by the retirement of one-third of the members at a time. A council is elected by the vote of the people, but there are restrictions on the elective franchise. Voters are divided into three classes, according to the amount of their taxable property. Each of these classes elects one-third of the members of the council, a system which would find little favor in America. There are no party conventions, or nominations of candidates in any form, not even nominations by petition. There are no printed ballots, and no secret voting. Notices of the election are sent to the electors, and the voter appears and announces his choice to the officer, who records it upon the register of voters. There is little merit in this method to commend it to the American voter. A majority is required to elect in any case, and in the event of a failure of any candidate to procure a majority of the votes, a second election is held and a choice made between the two candidates who received the highest number of votes, similar in this respect to the sys-

tem introduced in California by the Berkeley charter.

All writers on government of German cities agree that the men elected to the councils are chosen from the foremost citizens, are men of the highest ability and integrity, and represent the best business sense of the community. In fact it may be said that the chief attribute of the German system, and its principal element of success, lie in the character and quality of the men who, at a considerable sacrifice of private interests, devote their time and thought and energies to the public service. This is a species of civic patriotism which is highly commendable. No salary is attached to the position, the terms are long, with practical certainty of re-election as a reward for honorable service. The post is regarded as one of honor. As there is little patronage to distribute, there is little encouragement for the candidate who is seeking private gain for himself or his friends.

The council of the German city is the organ of legislation, and is chiefly a deliberative body. It appoints the burgomaster, and the magistrat, which constitute the administrative board; it counsels and advises with that board on municipal questions, and prepares the annual budget.

But the most important organ of the German city is the magistrat, or administrative board. This is composed of the burgomaster and his magisterial council, all men who have had experience and acquired reputations as administrators; experts in law, in finance, and in all phases of administrative duties. A portion of them are paid. They may or may not be residents of the city. They are appointed for long terms of years, with liberal pay upon retirement. When a vacancy occurs in the office of burgomaster it is usually filled by the promo-

tion of some experienced member of the council, or by the appointment of some one who has gained reputation in similar positions in other cities. The unpaid members of the magistrat must be residents of the city, and are usually selected from the council.

The magistrat supervises all the municipal enterprises, and is charged with all administrative work, as the repair of streets, questions of housing, sanitation, sewage, drainage, fire protection, lighting, and all the public utilities; has control of the municipal revenues and public properties, and grants franchises, in conjunction with the council. It appoints the paid officials of the city, the choice being restricted to an eligible list of persons who have satisfied the high standard of requirements for such positions. Yet there are no civil service regulations. Examinations are given, but they are qualifying and not competitive.

The magistrat is therefore the principal factor and the real executive and administrative organ of the German city. While it is itself the creature of the council, inasmuch as its members are appointed by that body, it is independent in its actions.

The chief magistrate and titular head of the German city is the burgomaster. He has some special prerogatives, and presides over the magistrat, but has no vote upon its proceedings nor upon the actions of the council. He influences, but does not dominate or control the municipal policy. He is appointed by reason of his reputation, acquired in that or some other city, as an administrator in municipal affairs. It is not necessary that he be a vote-getter, but it is very essential that he be a capable official. His appointment is for a long term, or for life. His salary, as a rule, is larger than is the average salary of the mayors of American cities. He is provided with

an official residence, and upon retirement with a liberal pension. He has no political organization, and is not expected to contribute his salary to charity. These considerations, coupled with the permanency of the position, his freedom from abusive campaigns, the high social prestige of the office, and his opportunity for rendering important public service, all tend to attract to the position men of the highest capabilities, which, I repeat, is the secret of efficiency in the German municipal administration.

In brief, then, the framework of the government of the German city consists, first, of the municipal council, composed of the type of citizens selected by the people in the manner indicated; second, of the magistrat, an administrative organ composed in part of paid officials selected for their training and experience, and in part of unpaid resident members, who have been longest in the public service; third, of deputations or commissions of citizens, who are enlisted in some special civic work, and whose duties are performed in conjunction with the magistrat in their respective districts.

This is the merest outline of the framework of the German city government. I am not describing it in order to recommend it. My purpose is one of comparison of methods and efficiency. There are many elements in the German method which are un-American and undemocratic; there are likewise in it many elements of strength, which though un-American and undemocratic, result in a high efficiency and consequently larger beneficial results to the people.

The complex affairs of a modern city can be more efficiently administered by men of training and experience than by men untrained and inexperienced however capable they may be as grocers, lawyers, carpenters or ministers. Be-

sides, short terms of office are good for bad men, long terms better for capable men. Short terms and frequent elections, with their attendant disagreeable features, have a tendency to deter men successful in private life from entering the public service. The German city seems to be able to secure the services of its most capable citizens for long periods of time. The American city frequently elects untried officers and retains them for a short period of time. While it is true the long term is bad when you get inefficient men, but by the German method of selection they secure qualified men for administrative offices, because by custom and by public opinion the choice is restricted to those persons who are capable. It is not limited by locality nor affected by political strength.

When Berlin was seeking a burgomaster, its council, after surveying the field for eligible persons both in and out of that city, selected for the position the burgomaster of Breslau. Had this appointment been tendered for a short term, or until the next election, at which he would likely be defeated, through local prejudice or factional differences, he would not have accepted the post. Under such conditions there would not be in Germany, any more than there is in America, a distinct class of trained, experienced, professional municipal experts, whose earnest, non-political and non-partisan services have contributed to the standard of efficiency maintained in the German cities.

The problem in the American city is to secure the benefit of such trained expert in municipal affairs, and yet adapt such a system to our ideas of democracy. In other words, it is to secure a government of high executive efficiency and keep it amenable to popular control; to develop a professional class of municipal officials, and avoid bureaucracy and a

tendency to officialism. It is not an easy problem.

What does the German system teach us? How can we reach their standards, without adopting their methods? Can we reach the same result by democratic means? If not, are we willing to sacrifice our democratic methods to secure an administration as efficient and capable as that of a German city? The problem is, administrative efficiency amenable to popular control. There are many things in the German system which do not appeal to us. We cannot revolutionize our city governments by bringing our mayors from other cities—that is impracticable. Nor by a system of class voting, giving to one corporation—as in the little town of Essen, in Germany—the right to elect one-third of the members of the council; that is undemocratic. Nor would it improve our system to abolish the secret ballot; in that respect our method is the best. Nor by establishing a bicameral council; that has been tried very generally in American cities, and abandoned. Nor by appointing officers for life; that is un-American. Nor by the election of large councils; the theory of our commission charter, which provides for a small council, is to be preferred. Nor by the election of members by districts instead of at large, which is likewise contrary to the theory of the commission plan. Nor by the appointment of mayors by State officials; that is not home rule.

The surprising thing is that the German city gets the results by methods which would find so little favor in America, and the American methods bring results which would find so little favor in Germany. We have little sympathy with their methods, and they have little regard for our results. Shall we sacrifice method or result? The matter becomes important at this stage of American city government, because we are en-

tering upon an era of municipal ownership and large municipal enterprises, which should not be undertaken blindly and which cannot be conducted successfully without the aid of expert assistance. Experts are not usually secured by popular election.

Let us pass for the moment to the English city. While less effective, perhaps, in the opinion of critical observers, the English system is less repugnant to American ideals of popular government. In the English city the whole administrative and legislative authority is vested in the council, a principle quite in accord with the commission system, which has gained so much favor in recent years. The English council, however, is large and its members are elected by districts, each for a term of three years, with the practical certainty of re-election. One-third of the members retire annually. The council appoints the mayor or provost, usually from among its own number. He presides over the council, but otherwise has no special powers or prerogatives above that of a member, except those of a social nature. The administrative work of the council is carried on by means of committees of its members. The English council committee is one of the principal features of the English system of government. A factor which also contributes to the continuity and permanence and efficiency of the English method is the selection or appointment by the council of aldermen, equal to one-third their own number, who act with and form a part of the council. The aldermen are usually selected from among the experienced members of the council itself, or from among persons who have had long experience in the public service in that or some other city. They serve for six years, and are usually reappointed. The council, including the aldermen, appoint the administrative heads of departments, a sys-

tem in accord with the commission government plan. So in both England and Germany, though the forms of procedure may differ, an efficient and economical administration is secured by entrusting the actual administration of affairs of large concern to professional or expert officials, who hold office for long terms without political effort or influence or subserviency. It is probably that fact as much as any other which distinguishes the municipal systems of Europe from those of America. This difference is due to the difference in attitude of the public mind toward the purposes of municipal government. It may well be asked, what prevents the control of municipal appointments in England through partisan or political motives, as in America? The answer is nothing except the different state of the public mind toward public office, and the healthy popular tradition which the good sense of the councilmen teaches them to observe. We are prone to elect persons who are good fellows, who have amiable qualities, or some assumed claim of right to the office, factors which are not recognized in the countries described, to the extent that they are here. The English and German councils would not gain public favor by appointment of one who was personally popular but professionally unqualified. In order to raise the standard of municipal administration we must elevate municipal politics. To encourage the professional administrator we should discourage the professional office-seeker. With their unrestricted power of appointment, the English and German councils are probably freer from partisan influence than an ordinary American council, with all of its legislative safeguards and civil services regulations. Under the English system employees are removable by majority vote of the council, without cause or hearing,

but the right is never exercised except for misconduct or inefficiency. The condition is due not to civil service rules, but to a pronounced public sentiment which the council strictly observes.

Mayor Mott, in his excellent paper read before this League at its last convention, said: "A lengthy tenure of office is unpopular in America. Rotation in office is almost a fixed principle with our people. This may be based in the belief that office is the proper spoil of partisanship; upon a dread of the tyranny of officialism, or upon the fear that dry rot and fossilism will destroy efficiency and progress." That tendency or desire for rotation in office has been one of the potent reasons for the weakness of American administration. The choice of administrative officers has not been restricted by a fixed standard of qualification, but has been open to all, whether qualified or not, who could command the partisan strength and effect the needful political combinations to land the job. There have been two classes of persons responsible for this condition of municipal politics, namely, those who have been in politics for private gain, and those who have been out of politics for private gain. The one class manipulates and the other class neglects municipal politics for the advancement of its own financial interests.

But let not my criticism seem too harsh, nor my comparison too unfavorable. Let it not be understood that I have overlooked the progress that has been made in American cities, or have given the impression that the future is not hopeful. What I have said in the comparisons stated has related more particularly to that type of American city government under the former system, or lack of system, which prevailed a decade ago, and before the people had begun to study and manifest an interest in

municipal conditions, and before they awoke to the necessity of municipal reform. Were Mr. Bryce, the keen and critical observer of our institutions, to rewrite his American Commonwealth he would revise his statement, true at the time, that the government of American cities is our one conspicuous failure.

For a century our development has been along national and state lines; for a decade it has been along municipal lines. But we are still in an experimental stage, casting about for a method, for some adequate system of administration. We shall need a good measure of statesmanship and a generous patriotism to solve the new and complex problems, social, economic and political, in city administration.

The last ten or twelve years have witnessed marked progress in the efficiency of government in most American cities. It is to be hoped that the next decade will show equal progress. We have departed from many cherished ideals of government in the adoption of the commission plan. We may have to shatter others to reach a standard which will satisfy the demands of the people. The commission plan, in my opinion, is a distinct advance in the form of municipal charter, but the form of the charter is one of the least advantages derived from its adoption. The agitation and general interest its discussion has aroused among the people in municipal questions has been of far greater value. The commission charter marks decided progress, but it is not the solution of our problem. With popular rights protected and democracy triumphant through the initiative, the referendum and recall, and the nomination by petition, would it not be safe and wise to entrust our councils with the power and encourage the policy which would secure the aid of experts in the higher adminis-

trative positions—men of the same experience and technical skill as are employed in successful private enterprises demanding similar services.

It is discouraging, in this age of intensified democracy, to find in the German cities such a high standard of efficiency obtained through a system so undemocratic. The German people are content to enjoy the benefits of efficiency in government at some sacrifice to popular control. Americans are more inclined to retain popular rights, at the sacrifice of some degree of efficiency. Last week the Board of Public Works of San Francisco appointed a City Engineer, a most important position, owing to the magnitude of public work about to be undertaken. Let it be supposed that they selected the most capable official who could be found. It is questionable whether this appointment will be held regular, because, while practicing his profession in San Francisco, his residence is across the Bay. It is contended that before he can be retained to advise the city in the execution of its large constructive work he would have to reside in that city for a period of a year, because the Charter, although it fixes no standard of qualification, does restrict the appointment to those who happen to reside within a given area.

These are some of the defects of the American system, some of the causes of inefficiency. We have discovered the evil. What is the remedy? We have made the diagnosis; what is the prescription? What method will produce an administration of the highest expert efficiency, and yet render it amenable to popular control and make it reflect the true demands of the people? In answer it must be said that there is probably no one royal remedy, no method which will produce magic results. We have seen that the German city gets a higher ef-

iciency through methods, some of which at least, we would scorn. As with the progress we have made in the last ten years, an efficient administrative system can be reached only by a process of education, through organizations and leagues of this kind, and through the universities, and bureaus of efficiency or any means which will change the attitude of the public mind toward the purposes and duties of public office, and will teach the people that modern municipal administration, especially in the large cities, is a science, and that its important functions can be efficiently discharged only by those who by training and experience have made themselves proficient in that science; an education which will teach the politician that the city is not an institution for his special exploitation; an education which will induce the indifferent citizen to manifest an interest in public affairs; an education which will discourage partisanship of the press, and hold the editor to as high a standard of veracity in print as in private speech; an education which will discourage the demagogue and encourage the high class, capable, honest, public-spirited citizens who represent the best business sense of the community, to enter the public service; an education which will encourage and foster a profession of men trained for that public service, and a community sentiment which will demand their employment, with some permanency of tenure; an education which will discourage office seeking and partisan politics and political methods, and teach the people to regard important public positions not as prizes for the benefit of those who secure them, but as instruments solely for the public good when in the hands of those specially qualified. Restrict the choice of officers to those who are professionally qualified, and eliminate the baleful influ-

ence of political patronage and partisan spoil, and you have removed the thorn from the flesh. Get the city out of politics and the hands of mere place-hunters as far as we can by some educating influence which will elevate it to a higher and more dignified plane.

Were I to offer any criticism on conditions in the smaller cities and towns of California which I have visited, it would be, that there are too many petty, factional differences over matters of local concern which do not relate to any fixed principle, or to efficiency of administration. It may be over the question of liquor; it may be simply the old gang against the new; it may be a contest of a local newspaper for the public printing and dominant influence with the administration. It may be no particular issue at all, but just one faction against the other, and the wiping out of old scores in true Kentucky feud fashion. It may be that John Smith of the third ward is urged to become a candidate for the council. He knows nothing of the needs of the modern city, nothing of sanitary science, of health laws, of food inspection; nothing of housing and tenement laws, nothing of municipal ownership, nor of the fixing of rates of public service corporations; nothing of public accounting or of municipal finance; nothing of the problems of economic organization, nor of the history, forms, or method of city management; nothing, in short, of the larger and complex questions which will arise, demanding the highest degree of business sagacity and judgment and familiarity with municipal affairs. Yet he is urged to run, because he is the strongest man and best vote-getter in the third ward. Such popular attitude does not contribute to efficiency in administration, or show a healthy civic atmosphere. But no matter who is elected under such circum-

stances it is always proclaimed and heralded as a great victory for the people. The people, it will be noticed, always win. By the term "the people," I suppose, is meant either those who are not running, or those persons who supported the winning ticket. "The people" have won more victories in municipal contests, and derived less beneficial results therefrom, than any other element of the population.

No cure for such conditions can be effected solely by the adoption of any particular method, be it the German, or English, or the reformed American procedure. An efficient administration cannot be expected from inefficient or untrained officers, however honest and well-meaning they may be. The progress which has recently been made in municipal government, the practical elimination of graft and corruption, the adoption of the commission system, have all been the result of an awakened interest among the people, the education of the public mind to a change of attitude toward the local government. The improvement of method and increased efficiency which is to come must arise from the same cause. So I repeat with emphasis, that we must look to this League and to the National League and organizations of their kind, to the University of California and similar institutions of learning, to take the lead in supplying this public need. It is singularly fortunate that this convention is held in the University city, and by courtesy of its President, at the University itself. It brings the University into closer relation with the representatives of the municipalities of the State, and as the scientific guide in its municipal as well as its economic and industrial development perhaps will stimulate this educational movement.

Under our modern charters, with

their provisions for the initiative and referendum and the recall, it cannot with much show of reason be contended that city government is not amenable to popular control. Perhaps in some instances there has been reached a degree of amenability not consistent with the exercise of the best judgment of those qualified to decide. The semi-official council suggested by Mayor Mott, drawn from the analogy of the German commissions, may be as useful a method of ascertaining the will of the people as the more drastic remedies of the initiative, referendum and recall, and certainly are less expensive and tumultuous. I may say that a somewhat similar official council, constituted in a little different way and with somewhat larger powers and duties, was proposed in the Board of Freeholders who prepared the Berkeley charter a few years ago. The discussion of its merits was more heated and earnest than that of any other question that arose. But the proposition finally failed of adoption, by a vote of eight to seven. Such a council, though having objectionable features, would be useful in many ways. It would materially reduce the occasion to resort to the drastic remedies of direct legislation. It would reflect popular opinion, but it would not specially tend to secure that feature of the German and English systems which results in the employment of experts in municipal administration. That comes as a result of the growth of public opinion, an education, as I have indicated, of the public mind with respect to the requirements of public service. I am inclined to agree with the contention of Secretary Mason at the last convention, that the custom of drawing our administrative officials, particularly the heads of departments from other cities where they have made good in similar work, would tend to create a

distinct profession, and would dignify the positions to the extent that the officers would be made to feel that their calling was recognized as a profession, as in other countries.

Something can be done by legislation, by prescribing standards of qualification for public office, and by removing barriers which have imposed territorial restrictions upon the choice of officers requiring technical knowledge. In other words, contract the range of choice as to official qualifications, and widen it as to geographical area, with respect to positions requiring technical skill.

I think the American cities should begin to build for permanency. The German thinks it is good business to spend money, cautiously and economically, of course, but liberally, for the upbuilding of the city, and that such expenditure brings good return for the taxes paid.

He thinks it is good business for the city to be beautiful, comfortable, and attractive; good business for the city to do anything which will reduce the cost of living and make a city a more comfortable, healthful, and better place in which to reside. American cities are in a position to undertake broad constructive policies under more favorable conditions than were the European cities, but in these enterprises the service of expert officials, technically trained, must be secured for the work.

I close by quoting a passage from a paper by President Lowell, read before the National Municipal League at one of its recent conventions. He said, regarding the subject discussed herein:

"That this can be accomplished by any changes in the law may, perhaps, be doubted. That it will be accomplished as soon as an educated and intelligent public demands it is a moral certainty."



EQUITABLE ASSESSMENTS

BY JOHN GINTY, ASSESSOR OF SAN FRANCISCO

It has been said, that there is but one commodity that has a fixed or ascertainable value, and that is gold bullion. There is never an over supply, it is in demand all over the world and is the measure of the values of all other commodities which are limited by supply and demand, even the so-called necessities of life, such as food, clothes and drugs, are subject to the law of supply and demand. Values of land and improvements also are subject to the same law of supply and demand. Speculation in values is common to both real and personal property. Land being indestructible and the supply always the

same, should be subject mainly to the law of uses and speculation. Improvements do not, as a rule, increase in value, the advance registered in sales, is due almost entirely to increase in land values.

The person whose judgment of speculative values was perfect, would soon be the richest man in the world. It is impossible to reduce it to a percentage table as it is governed by so many conditions that may arise in the fortunes and wants of unknown buyers and sellers, that even the opinions of the best experts prove unreliable. A successful land speculator of New York was once

asked what made the values of real estate. His answer was "what the buyer will pay for it." When asked what the buyer based his judgment on, he replied "On a community opinion, that is, if the majority of people thought the west side of a street better than the east side, the majority would pay more for the lot on the west side of a street."

The elements that go to make a community opinion are:—

1st. Travel and transportation, including street cars and pedestrians.

2nd. Class of adjoining improvements and business houses.

3rd. Conditions of the street, including length of street, contiguous territory served by the street, grades, pavements and climatic conditions. In residence districts the social conditions of your neighbors materially effect valuations, as well as view points, gardens and size of lots, which in turn affect the health conditions.

4th. Good, economical city government.

5th. Speculative Growth.—As different individuals take different views of the elements that go to make up values, it is readily seen that it will be a difficult problem to establish a uniform value to please all. The appeal of a tax payer from the Assessor's valuation to the judgment of the Board of Equalization, is generally unsatisfactory. The Board is not elected on the basis of their qualifications as expert appraisers of real estate and usually have no time or system to find out the conditions that establish the value.

Systems.—To avoid many disputes and to correct favoritism in assessments both by assessors and members of the Board of Equalization, various systems have been devised. The one most in use is known as the Somers' Unit System. The various conditions in each city and

districts in a city, make it necessary to make so many modifications in the Somers' system, that the percentages as given in that system for valuation of lots of different depths and corner influences on lots, that only the general principle of the system can be followed.

The unit of value is arrived at by establishing the value of a lot having one foot frontage by 100 ft. deep, located in the center of the frontage of each side of the block with an increase as the frontage approaches the corner if the intersecting street has a higher unit value in the same block. For example, suppose a block is bounded on the north by A St., on the south by B St., on the east by 1st St., and on the west by 2nd St. The unit of value on A St. is \$100 a front foot, on 1st St. \$200, on B St. \$300 and on 2nd St. \$400. The increase value on any street may be attributed to better car service, location of stores, or conditions of streets and sidewalks which draws travel toward it. The unit of value of A St. is \$100 a front foot and is located midway between 1st and 2nd Sts. On 2nd St. the unit value is \$400 a front foot. The nearer the resident on A St. is located to 2nd St. the less distance he has to walk, the less time will be consumed in making the 2nd St. car or the 2nd St. stores, hence if time is money and shoe leather is worth saving, it follows that he can afford to pay more for a lot nearer 2nd St. in order to make the saving of time and shoe leather. Also the chances of the elements that go to make the increase value on 2nd St. may extend easterly on A St. The deduction for shallow lots or additions for deeper lots is a question that presents different conditions in different places. A shallow business lot is worth a greater proportion of the unit value of 100 ft. deep, than a residence lot of the same depth. Some deep lots are worth a

greater proportion of the unit value due to their availability for special uses, like warehousing, etc. Each assessor should work out a percentage table to fit his work or secure the services of an expert.

In assessing improvements it is usual to assess by the value per square foot of each floor of the improvements, because the opportunity to measure the height so as to get the cubic measurement is more difficult to get at. Architects prefer to make estimates on the cubic foot, because it is easy for them to get the elevation from their plans. These estimates will vary according to cost of material and labor in different places, and can be compiled from contract prices of houses built. For assessment purposes no allowance is made for air shafts and open spaces of such kind. In New York City the following figures are used as the bases of estimates:

Frame Buildings for Flats or Houses \$1.50 to \$2.00 a square foot or \$12 to \$16 per cubic foot.

Hotels and apartments, steel construction, 10 to 16 stories high, \$4 to \$7 a square foot. The same in brick or stone, \$2 or \$4 a square foot. Boilers per horse power set \$8 to \$12. Engines per horse power \$10 to \$25.

Lands in acres can be valued for their rental value for agricultural purposes, or based on their speculative value cut up into lots, each acre being equivalent to 10 lots 25 by 120 ft. after allowing for 80 ft. streets and blocks 240 by 600 ft.

Boards of Supervisors or City Councils can make no better investment than making liberal appropriations for installing and keeping up the best systems for the workings of an assessor's office, that office being an office of original entries which usually furnishes the basis for five-sixths of the revenue of the city.

The daily sales of real estate should be kept and posted to a ledger account for each block. While many of the sales only show a nominal consideration, the assessor can usually find out the true consideration from the buyer, seller or agent making the sale. He can also be guided by the asking prices of lots advertised for sale, auction and probate sales may be of assistance, but are not as reliable as other sources of information. Probate appraisements are usually a farce.

Block book maps should be kept showing the number and dimensions of lots and ownership, and duplicates furnished the tax collector each year. This can be cheaply done by a photographic process costing from three to six cents per block. The assessor should also have a permanent card index showing owners' names and address and the property owned indexed by lot and block number on the card. Under Sec. 3658 A of the Political Code, legislative bodies are authorized to make assessment maps from existing maps on file, giving each block a consecutive number and numbering the lots in each block. The names given to maps by parties who subdivide their acreage tracts into lots should not be followed in the assessment. A uniform consecutive numbering of blocks makes it easy for anyone to locate the block by its number in any part of the city, and while the owner may wish to use a name to aid him in selling, he can as well describe it as Smith's sub-division of assessment blocks numbered blank to blank.

A map and block books made by the Assessor of San Francisco on the plan provided in Sec. 3658 A, would save the city \$10,000 a year in labor, reduce the chances for errors in description and be an effectual check on the omission of any piece of property escaping taxation.

Field maps of each block showing the assessed valuation of each lot and improvements thereon, would show at a glance if wrongful assessment had been made on lots or buildings.

The salary of the assessor should be commensurate with his duties, responsibilities and knowledge required to make an accurate and honest assessment. No officer is entitled to a larger salary than

the assessor. He must know the assessment laws and valuations, and he is expected to furnish the valuations on which the city must raise money for annual expenses or the basis or limit of bonding. He meets more people and is subject to more temptations than any other City or County officer and his services should be recognized in the amount of his salary.



THE SYSTEM OF ASSESSMENT IN PALO ALTO

BY FRANK KASSON, CLERK AND ASSESSOR OF PALO ALTO

Mr. Chairman and Gentlemen:

Three years ago, when the Palo Alto Freeholders' Charter became operative, the Ways and Means Committee of the City Council worked out a system of land assessment which it was designed should impartially equalize values and at the same time place the larger portion of the tax levy on the land. The basis adopted was 60 per cent on land values and 40 per cent on improvement and personal property values. A list of recent sales of property was made and the prices paid on different streets and in different sections of the city were used in estimating the value of the land. The assessed valuation per front foot, with a depth of 100 feet, was marked on a map. Ten per cent additional was provided for corner lots (25 feet in the business district and 50 feet in the residence district), and for a depth of more than 100 feet a further percentage was added to the value—3 per cent for a depth of 105 feet, 7 per cent for 112½ feet, 10 per cent for 125 feet, 15 per cent for 150 feet and 20 per cent for 200 feet. No reduction was allowed for unimproved property, even in the case of whole blocks that were vacant.

The reason for placing the higher val-

ue on land was due mainly to the fact that a considerable net profit arising from the operation of the municipal light and power plants was annually turned into the general fund, and under the old plan unimproved property was escaping its just share of taxation, while home owners and patrons of the municipal plants were paying more than a just share of the taxes. Since then the policy has been adopted of reducing rates for water, light and power to the cost of production plus enough to maintain a small reserve fund for use in cases of emergency. The plan of assessment, however, has worked so satisfactorily that there has been no inclination to make a change.

During the two years which I have held the position of assessor, a close observation of values has led to the conclusion that the assessment is fair and equal, and it certainly gives better satisfaction than the former haphazard figures. The protests which were frequent when the assessment of land was first increased have ceased, and even the owners of the larger tracts of unimproved property accept the system as equitable.

At the same time the assessment of land was fixed at 60 per cent the assess-

ment of improvements was placed at 40 per cent, and as the value of the buildings is in most instances greater than the value of the land the home owner has had less taxes to pay.

In making the assessment for the current fiscal year it was determined to get as nearly an equal assessment of the improvements as possible. To accomplish this two members of the Council who are experienced building contractors assisted the assessor in placing the real present value on every building in the city. Every building was visited and appraised and the full value was marked on maps, insurance maps showing all the buildings being used. These maps will have new buildings noted on them and will form permanent records. The full value being given, any required per cent of valuation can be taken in any given year, or a depreciation per centage may be marked off if this is found desirable.

In making this appraisement of improvements, it was found that some properties had been assessed too high and some too low under the old plan, and while it was not intended or desired to

increase the total valuation, the result showed an advance of about 5 per cent on residences and approximately 8 per cent on business buildings.

The whole system of assessment as worked out meets with little criticism and much commendation from the citizens. This is but one example of the efficient administration that has been brought about under the Freeholders' Charter. Equally great betterments have been made in the accounting system, and while the method of bookkeeping is not the same as is recommended by the League it has been worked out under the direction of a certified accountant and is giving the very best results. The municipally owned plants are being operated on a more efficient and economical basis, and instead of a too large net profit, each year brings a benefit to the consumers in a further reduction of rates and a materially better service. Much street work has been and is being done and the constant aim of the administration is to beautify the city and make it more and more desirable as an ideal place of residence.



"BUDGETS"

BY WILLIAM DOLGE, C. P. A., ACCOUNTANT OF FINANCE COMMITTEE
BOARD OF SUPERVISORS, SAN FRANCISCO

I was asked yesterday morning, "What is a municipal Budget, and what do you do with it after you have it?" A good definition of a budget is "A statement of probable revenues and estimated expenditures and of financial proposals for the ensuing year, as presented to or passed upon by a legislative body." A shorter one is that of a cynical ex-mayor who called it an official attempt to make both ends meet.

Here in California the Constitution prohibits a legislative body from incurring liabilities in any year that cannot be met out of the revenues of that year. Charter requirements and the Municipal Corporation Act limit the tax rate for general purposes to \$1.00 per \$100.00 of assessed valuation, and hence the imperative practical necessity for the formulation of the budget is not nearly so great in California as in other States of

the Union where the powers of the finance authorities are not so wisely limited. No document can tell in such condensed form so many significant facts about community needs and government efforts to meet these needs as a properly constructed budget. No single document published by municipal authority can give to the taxpayer a better means of judging the efficiency of different administrations and of departments, than a properly constructed comparative budget.

The use of the budget is understood in nearly all of the larger cities, even if not fully availed of, and if I am addressing myself more particularly to the needs of the smaller cities of the State, I plead as an excuse that of the 204 incorporated towns and cities, only 7 have a population of more than 30,000 and only 11 more than 20,000. The administrative problems of San Francisco, Los Angeles, Oakland, Sacramento, San Diego, Pasadena, Berkeley, Stockton, Fresno, San Jose and Alameda, have much in common, but the problems of the smaller cities are of a different character, and while certain general principles are applicable to all, special consideration must be given to the smaller cities. Indeed the larger cities are in a position to expend money for expert service to solve their individual problems, whereas the smaller cities must perforce learn from the experience of their neighbors.

It is surprising to note how little city officials know about their own city's financial affairs. In its broadest phases, no financial problem is simpler than that of a municipality. Where the directors of a private corporation are confronted with the problem of "getting" the money, as well as with the problem of expending it wisely, the directors of the municipal corporation have the problem of "getting" the revenues solved for

them. More than that, the directors of a municipal corporation can forecast with a remarkable degree of accuracy just what the sum total of these revenues will be, whereas the directors of a private corporation can only guess at and hope for their estimated total revenue. Yet despite this apparently serious defect many of the larger private corporations (and some of the smaller ones) have adopted budget systems because the budget has been found to be an invaluable aid in administrative control of expenditures.

All the directors of the municipal corporation have to do is to spend the money, and the budget is recommended as a method by which the city trustee is guided to spend the tax-payers' money both wisely and well.

The budget and its incorporation into the municipal accounts is not a cure for all municipal ills. But it does carry with it certain definite advantages, the chief of which are

First:—That the Budget insures an adequate allowance for each department of the city government, secondly, that the budget effectively limits expenditures, and thirdly the budget substitutes facts for guess work for the guidance of the administrative authority.

It is easy to outline the necessary steps for the preparation of a budget. You set up a statement of probable revenues from taxes, from licenses, from fines, fees, and miscellaneous sources, for the purpose of learning the total amount of moneys available during the fiscal year. The next step is to set up a statement of the probable expenditures for all purposes during the year, classified in an orderly and logical manner according to functions, conforming as closely as possible to the Controller's classifications, or at least according to the departmental divisions of the city government.

Classified in an orderly and logical manner is easy to say. Even the Controller's classification of expenditures is not in detail. The single item of General Government in that report covers all of the expenses of the Council or Board of Trustees, of the Clerk or Auditor, of the Treasurer, the Tax Collector, the City Attorney, the Recorder or Police Judge, the Marshal, the City Engineer, Maintenance of City Hall, etc., and it is hard to believe that a Clerk in a City of the sixth class can have the variety of expenses he does have, outside of his salary, until you examine the demands for which he is responsible. In setting up your budget you will have to make allowance in the average Clerk's Office for some or all of the following items:—

Clerk's Salary,
Salary of Assistant, preparation of Assessment Roll,
Assessment Roll Book,
Field Books,
Block Books,
Postage—Telephone and Telegraph,
Office Stationery—Office Supplies,
New Record Books,
Printing—Office equipment such as Typewriter, Typewriter Supplies,
Filing Cases,
Adding Machine, and finally
Expenses attending Conventions,
and having made allowance for everything you can think of, give the clerk an additional allowance for unforeseen expenses.

This itemization must be carried out for each department, in the same detail, care being taken that none are overlooked, and that provision is made for every normal and abnormal expense that may arise during the year. Having gone this far it will naturally suggest itself that one of the best means of determining the proper amount to be set aside for any specific purpose is to place alongside the

estimated amount on the current year's budget, the actual expenditure for the same item during the previous year, or years.

Where the budget is incorporated in the accounts and expenditures are classified by functions this will prove simple. An examination of the particular expenditure account will promptly disclose the true amounts. Where the accounts are maintained by funds only, it will be necessary to examine the past year's demands, or omit the most instructive comparison. It would seem that a conscientious head of the finance department would not be content with guesses as to what amount was sufficient for a single department, but that he would inform himself upon all the actually necessary expenditures for each department in complete itemized detail going so far as to insist upon the names and the designations of the employees of that department. It would further suggest itself that such careful preparation of the budget is indeed "Love's Labor Lost" unless the budget, as approved by the legislative authority, is actually incorporated into the accounts.

This for the purpose of receiving monthly reports from the Clerk or the Auditor showing the exact condition of each of the budget appropriation accounts. The statement prepared from the expenditure accounts should show for each budget account, first, the total amount appropriated, second, the amount expended to date, third, the balance or overdraft on the account. Consider the effectiveness of such a statement in guiding the deliberations of a board or Trustees, one of whose principal functions is to spend the municipal revenues! If at the end of six months the Clerk has spent more than half of the amount originally set aside for his office, either retrenchment will be in order in that of-

fice, or if the expenditures are legitimate, an additional appropriation must be made from surplus accounts. In either event no other department will suffer by reason of unforeseen expenses in the Clerk's office. Twelve times a year, or oftener if desired, each account is reported on, thus enabling the municipal board of directors to pass upon proposed expenditures with the same dispatch that characterizes a private board of directors. Think of how the treasury is safe-guarded and how it becomes impossible to wind up the year with a deficit, so long as the budget is lived up to. In one city, with revenues of about \$30,000 a year, an old deficit of \$12,000, was cleaned up in two years time with the help of the budget system, and apparently more street cleaning and repairing and sprinkling was done during those two years than ever before.

Running on a hit or miss plan of incurring liabilities so long as there is money in the Treasury without regard to necessary expenditures that must be incurred at later periods, brings about one of two results. Either the available funds are exhausted before the end of the fiscal year, or (and this has happened) it leaves a surplus in the Treasury, with respect to which the legislative authority is in doubt whether it is available for expenditure or not. Thus, for example, a bond election for the construction of a fire house was held in one of California's enterprising little cities, when with a little judicious management the cost of the fire house could have been met out of the accumulated surplus and the surplus to accrue during the current fiscal year. But without a budget the Trustees could not know exactly how much money would be available for this purpose. Hence the bond issue.

The construction of a budget falls naturally into three divisions. Having ascertained the available revenue for the fiscal year, the next step is to ascertain definitely, first, the financial obligations imposed by statutory or charter requirements. Second, the financial obligations imposed by ordinance requirements. Third. The financial obligations to be incurred for better maintenance or for improvements, which amounts can only be determined after the first two have been taken care of.

In the first division of statutory and charter requirements, we have the amounts that must be set aside for bond interest and redemption purposes, for library purposes, in some cities for park and playground purposes, school purposes, and finally such salaries as are fixed by charter or statutes. In the second division we have all those expenditures for salaries and other purposes which have been fixed by ordinance, and after these two have been stated, the remainder is available for distribution among the various city departments. The examination of the report of California Municipalities filed with the Controller of the State, for the year 1911, shows that the receipts from property taxes are approximately 60 per cent of the total receipts, and that the average expenditure for general government, that is to say for administrative purposes is over 35 per cent, ranging from 10 per cent to 90 per cent of the total expenditures, or roughly, more than half of the total revenue derived from property taxes.

Manifestly these percentages indicate that in some cities there is a reckless disregard in expending the municipal revenues, and it is more than likely that little or no reliable information is available either to the trustees or the tax-payers with respect to the expenditure of public moneys.

Another practical feature that should commend the budget to the trustees or councils of all cities is the time-saving feature. Once the Board has fixed the budget for the year, it may become deaf to all of the many appeals for money for this purpose or that purpose or some other purpose. The invariable answer will be: "We have no money available. Look at the budget and if you can find a department willing to give up a portion of its appropriation to you, why then we will consider it, otherwise your request will have to go over to be considered in next year's budget." Finally the budget plan permits the administrative authorities to lay out a definite program of improvements during the current fiscal revenues—not out of bond moneys—which program may cover a term of years.

A city of about 11,000 inhabitants not far from Berkeley is planning to spend nearly \$33,000.00 for street and other improvements to be made out of current year. Almost \$3.00 per capita,—over half of the revenue to be derived in this particular city from property taxes. That gentlemen, is constructive municipal financing and such financing is only possible if the administrative authorities have constant access to correct financial data covering every function of the municipal government.

A great obstacle to be overcome in the introduction of the budget into the accounting lies in the fact that our municipal accounting officials are wedded to the idea of fund accounting. If the fund accounting were properly conducted at all times, the sewer fund would show how much had been expended for sewers alone, and so for each of the funds. But the fact of the matter is, that practically no city holds the funds inviolate, and that it is a common practice to transfer amounts from one fund to another with-

out subsequent repayment, and that the situation is further complicated by the payment of bills out of the general fund, which should have been paid out of some other fund.

Under present methods in most cities the accounts of the Clerk are a duplicate of the accounts of the Treasurer. Fund accounting is necessary, if for no other reason that to establish the integrity of cash receipts and cash disbursements and to safeguard the rights of the purchasers of our bonds, to guarantee definite amounts for library, for park and for school purposes, and to guarantee to the tax-payers that moneys raised by the sale of bonds are expended for the purposes designated. But this does not make salary, sewer, water, lighting, jail, hospital and numerous other funds which are not bond funds necessary.

The Treasurer is the banker for the city. The Auditor or Clerk is the bookkeeper. Let the Treasurer keep the fund accounts in detail, and let the Clerk maintain his fund accounts in totals so that the Treasurer's accounts can be checked readily. Let the Clerk keep the receipt and the expenditure accounts in detail, thus preserving the balance, the double entry, for the fund accounts and the receipts and expenditure accounts must always absolutely complement one another.

This will be possible and practicable if the budget is properly prepared, is classified by functions, and made the foundation of the accounting of receipts and expenditures. It is a matter of indifference to the tax-payer and should be likewise to the trustee whether a specific bill is paid out of the bond improvement fund, or the general fund, or out of the many sub-divisions of the general fund. The thing he is interested in is to know what the money went for, and that value has been received.

MUNICIPAL FINANCES AND TAXATION

By Edward L. Heydecker, Assistant Tax Commissioner City of New York,
Secretary New York State Conferences on Taxation

To most minds, the phrase "municipal finances" is the equivalent of municipal expenditures. Such attention as municipal finances have received from students of municipal affairs, has been directed chiefly to the making of the budget, the control of the budget, public accounting and the general proposition of getting a dollar's worth of goods or services for the expenditure of each one hundred cents.

All this is excellent and has been productive of great good; it has invited and developed a close scrutiny of municipal activities, their relative cost and the consideration of the varied fields into which municipal activities have extended or should extend. But in the main it has left untouched the question of how the municipal revenues shall be raised.

Those who are eager to see municipal activities extended to new fields or to see a broader occupation of fields already partially occupied, have often deplored the emptiness of the municipal treasury, but if they have given any real thought to the question of revenue, have usually occupied themselves in searching around for some new tax by which to add to the balance in the city treasury, or some way to extend the limit on bonded debts. Existing methods of taxation have been generally accepted, without any real scrutiny of their incidence, their productiveness, either actual or potential, or their equity as between tax payers. The general attitude has

been that taxes are inevitable, a nuisance and a burden. Payment has been accompanied by a feeling of unfairness and inequality, as though the tax was something taken by superior might from the citizen rather than an obligation fairly due to the public treasury for value received.

Municipal revenue is very largely made up of the proceeds of taxes levied on real estate, that is on land and the improvements thereon. Of late years the proportion of revenue coming from a direct tax on real property has increased until in many cities, particularly in our northern and western states, this constitutes almost the only source of municipal revenue from direct taxation. At the same time we find an earnest effort being made to provide state revenue from other sources, so that the direct tax on real estate may be left to the municipality. These two efforts are reciprocal and each has helped the other.

Thus in the City of New York ninety-six per cent of the direct taxes are paid by the owners of real property and only four per cent by the owners of taxable personal property assessed under the general property tax. For many years the State of New York has been reducing its direct taxes on the property of the individual taxpayers and deriving its income more and more from the so-called indirect or special taxes. For several years prior to 1911 the State of New York levied no direct state tax and would today be without

such a tax, were it not for the necessity of meeting the charges for interest and sinking fund on its rapidly increasing state debt for canals and roads. And what is true of the City and State of New York is true, to a greater or less extent, in many of the other states and larger cities. Of course, many of the states are hampered or even prevented from going far in this direction because of their iron-clad constitutional requirements for the taxation of all property by a uniform rule. California is one of the latest states to win its freedom from this cramping constitutional restraint on the evolution of a progressive and equitable tax system.

While thus the tendency is to put the main burden of local taxation upon real estate, this is justifiable, since the benefit from the proper expenditure of municipal revenue is reflected promptly in real estate values. These expenditures do not add to the value of any particular building but only to the value of sites, but they do cause a much greater demand for buildings and in consequence the number is increased. These site values mount with each dollar properly expended in any civic betterment or civic activity, and grow much more rapidly than the expenditures for such purposes. An outlay of a million dollars for highways may easily add ten or twenty millions to the assessment rolls by bringing land which formerly was inaccessible or for some reason unusable, into the circle of municipal activity and life.

As a general rule, each piece of taxable property or person assessed for taxation contributes to three tax budgets, namely, to the state, to the county, and to the municipality, for we can

properly classify school taxes and all taxes for special municipal purposes as really constituting part of the municipal budget. State and county taxes are rarely levied on separate assessments but are imposed as super-taxes on the municipal assessment. This being so, the vexatious question of equalization arises.

Nothing has done more to produce inequality of assessment and, what is far worse, to produce acquiescence among taxpayers in under-assessment of property, than the attempt to levy state direct taxes at a uniform rate on the basis of local assessment rolls. Hence the movement in the several states to provide a separate source or sources of revenue for the state, is really far more important as a means of bringing about equitable assessment as between tax payers in a municipality than as a relief from direct contributions to the state treasury.

If some way can be found to avoid the necessity for equalization for county purposes, this good work will be carried still further. Time does not permit the discussion in this paper of proposals made to that end. Foremost among these is the plan to raise state and county revenue by an apportionment of the sum required upon local budgets instead of upon local valuations.

If the assessor can be free to make his assessment solely as a basis for a municipal tax rate and not to serve also as a part of a larger basis for the imposing of a county or state tax rate, much will have been gained. In that event, nearly all of the inducement to under valuation will disappear. But even if the local assessors must continue to realize that their assessment

on real estate, in this paper I shall exclude from consideration all reference to franchise taxes or to special assessments for local improvements. This leaves only the attempt to assess personal property under the general property tax, and so-called business taxes or licenses on occupations or on various phases of business or chattels.

I do not deem it necessary to enter here into any discussion of the futility of attempting to assess personal property by any uniform rule or at any general rate. That has been done so often and so effectively that in only one state in the Union, Ohio, can any one be found in office, who even pretends to uphold or defend the system. Yet despite this general agreement as to the futility and inequity (or iniquity) of the personal tax, the assessors in the cities of nearly every state have fastened upon them, by constitutional requirement or statutory provision, the duty of attempting to assess personal property of all kinds, merchandise, chattels, loans, money and credits. Where they make any serious attempt to perform their sworn duty, there are loud complaints of the unfair burdens placed upon business. Where they ignore the constitution or the law and make no assessments or small assessments, they are denounced for favoritism or corruption. And where as in many cases, they boldly and openly make bargains with new enterprises for local exemptions or small assessment, they breed a disregard for the law which is most dangerous and demoralizing, and are also unfair to businesses already established.

All attempts to assess personal property for local taxation should be abolished, if only because of the ap-

parent and acknowledge evils which attend the system, evils far greater in extent than can be offset by the small revenue resulting from even the most rigid enforcement.

But another reason exists for its abolition. Every city is striving to attract business and rejoices in the establishment of each new industry and in each increase of business in its borders as shown by trade statistics. Yet every tax on personal property, every license paid to engage in business, every charge on any phase of business, is a reason why some particular business which otherwise would be attracted to a city, should keep away from it. And that business does often keep away from such a city is a fact well known to all and many instances could be cited. Yet every business attracted to a city brings in workers, increases the pay rolls and adds to its land values and its building values, and in that way more than makes up for the small revenue lost by abolishing personal property taxes and business licenses.

The foregoing has concerned itself with the sources of city revenue. There remains the large question of the administration of the assessor's office, or the question of efficiency in assessment. Since the main burden of local taxation rests on real estate and must rest there and since the assessment of real estate is becoming more and more a direct municipal question through the tendency to set it aside as a separate source of revenue to the municipality, the importance of improved assessment methods increases.

Despite the very general feeling that assessment is a matter of guess work on the part of the assessor, we know

that it can be made precise, scientific and accurate.

In such work, as in all branches of municipal work, the first requisite is skill and experience. The assessor should give his whole time to the duties of his office, he should be continued in office as long as his work is satisfactory, so that his growing skill and experience may be retained for the service of the municipality. New appointments to the assessing staff should be made from selected lists of qualified men. And the assessor and all his assistants should be paid salaries of adequate amount to attract and keep men of intelligence and integrity.

The records of the office should be kept so as to show to the public and particularly to the complaining taxpayer, all the processes by which the assessment has been worked out by the assessor. Publicity is one of the best cures for unequal assessments. It is very difficult to interest the average citizen in tax reports or in a study of assessment figures. But I maintain that the compulsion on the assessor to arrange his records in such a way that all the details of each assessment can be traced, is of inestimable benefit to him, even if no taxpayer ever examines his books. It will serve both as a check to the assessor against inadvertence or mistake and as a safeguard against the temptation to oblige a friend by a low assessment or for any other reason to make a small assessment.

To the end then that all the details of the process may be shown, the separate statement on the roll of the value of the land and the value of improvements is necessary. This at once checks inequality in the assessment of the land, because by this method

two lots of equal size, side by side, must show the same assessed value.

If a unit of value of the land be adopted, it will provide another means of checking all land assessments. The best unit of land value in cities is the value of one foot front of a standard depth, say 100 or 150 feet. Square foot value can never be satisfactorily used because it is the frontage on a street or other open space which determines the value of a lot, and square foot value ignores this primary rule.

A scale of value for varying depths of lots should be established. Different cities have different scales. No one scale can be said to be necessarily correct, but the main thing is to have a scale or percentage table, which is generally accepted and used in the buying and selling of land. It is noticed however that the percentage tables in use in the cities which have developed the most scientific work show only slight variations, one from the other, so that we can say that there is pretty general accord as to the relative values of long and short lots.

Tax maps are an essential to good work. A tax map is the tool most needed by an assessor, yet in only a comparatively few cities are maps to be found which are adequate for this purpose. How an assessor can be expected to produce an equitable assessment without a good tax map, kept up to date, is beyond me. Where criticism is justly made of careless or indifferent work by an assessor, it will usually be found that he is either without a map or has to work with one which is old, erroneous or lacking in some important particular.

The presence of a good tax map will not only protect the assessor and assist the taxpayer, but it will also per-

mit the making of a land value map. By this I mean an outline map of the city, showing the blocks or squares, on each side of which may be entered the unit of land values along the street. By means of such a land value map the relative values of streets may be shown, one with another, the high points and the low points and the gradations of value between them, through street after street, from one end of the city to the other. Such maps are prepared and published annually in New York.

In the matter of buildings a set of rules for the value of new buildings of certain definite types and sizes may be prepared, from which by a little adaption, and a proper allowance for depreciation, the value of each building can be deduced with relative accuracy, at least, as between buildings of similar types. By these means the assessment of land and buildings can be reduced almost to scientific precision. To illustrate what I mean let me say that I have on more than one occasion, been visited by an indignant taxpayer, who demanded to know how we arrived at such a high assessment on his property. Without permitting him to tell me more than the street and number of the house, the size of his lot, the size and material of the house, I have been able, by turning first to the land value map, to ascertain the value of the land, and by turning to the table of buildings values, to ascertain the value of the house. By adding the two together I have been able to tell him what his assessment should be and have witnessed his amazement when he showed me his tax bill, disclosing an assessment in substantial accord with my figures.

But I do not mean to intimate that

an assessment can be made in the office by simply consulting a land value map and a book of building values, because both the land value map and the book of building values, can only be prepared by trained and skillful assessors as the result of their work in the field. These maps and tables summarize what they have learned by diligent study and inquiry up and down the city.

Furthermore when the actual assessment figures are placed upon the roll, in many cases special allowances must be made for local conditions, such as in the case of land, rocky or swampy ground, bad grade or a sharp change in use to which the land is put. There may be a "twilight zone" between residences and factories, where values are very uncertain.

The value of land at the corners of streets presents many difficulties.

Every city assessor is continually wrestling with this problem and various attempts at a uniform mathematical rule to cover these cases have been made. But no rule has yet been devised sufficiently universal in application to be entitled to general acceptance as a basic principle. We must still rely on the discretion of the assessor applied to the particular corner problem, aided by the methods of appraisal in actual use by real estate men in their city, which methods may slowly be developed into rules for standard corners.

In the case of buildings, any building may present a special problem, calling for special consideration and allowance. In a rapidly growing city a large proportion of the buildings at any given time are obsolete because unsuited to the changed conditions of the neigh-

borhood in which they are located. Buildings good enough to last 100 years are frequently worthless as plainly appears when the property is sold and the building immediately torn down to make way for a different type. Because land generally rises in value and buildings always decline in value, buildings are usually over assessed. When the fact is known the danger is less, but great care must be exercised not to over assess buildings.

To sum up then. Aside from franchise taxes and assessments for local improvements, the main source of revenue for the city budget is taxation of real property. Every effort should be made to free this kind of property from taxation by other jurisdictions, such as the state and the county and reserve it wholly for the municipality.

Real estate is the logical subject of local taxation because the expenditures of the budget are immediately reflected

in the increased value of real estate and because the great value of the site of the city is due to the presence and enterprise of the city population, increasing proportionately with the increase in population. With full assessments a moderate tax rate will produce an amount to satisfy a budget made up economically and yet with due regard to the increasing municipal activities.

Taxes on personal property and all business licenses tend to drive business away or to interfere with its growth and hence tend to retard the city.

The main burden of local taxation now rests upon real estate and the tendency is rather to increase than to diminish this proportion. Hence the use of improved methods of assessment is imperative. Accurate, scientific methods are possible and should be introduced, to aid the assessor and protect the taxpayer.

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QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry. When requested, inquiries will not be published.

Q. Will you kindly answer the following questions in regard to cities of the 6th class:

1. Does the Board of Trustees pay for the Treasurer's Bond or does the Treasurer pay it?

2. Does the Board of Trustees provide a safe or safe deposit box, or is the Treasurer supposed to provide a safe place for the city's money at his or her own expense?

3. Do they safe-guard the money with a burglar insurance? If so, who pays the premium, the city or the Treasurer?

ANS. In response to your first question, will say that under Section 853 of the law governing your city "the Treasurer shall execute a bond, etc, etc.,"

which must be satisfactory to the Board of Trustees. Unless the Board of Trustees should otherwise provide it is up to the Treasurer to pay the incidental expenses if any are involved, in the furnishing and execution of said bond.

Replying to question two, will say that Section 876 of the law provides that it shall be the duty of the Treasurer "to receive and safely keep all moneys, etc." It is up to the Treasurer, therefore, to provide a safe place for the city's money at his or her expense. The Board of Trustees have nothing to do with it. You

do not have to have a burglar insurance unless you want to. If the Board of Trustees asked for it then they should pay for it.

Realizing that in order to safely keep the city's money the Treasurer is at some little expense, the average Board of Trustees will fix the Treasurer's compensation accordingly.

Q. Would you kindly inform me at your earliest convenience whether or not you know of any legal objection to submitting a proposed ordinance of the City of Riverside under the referendum to the electors of the said city on the same day as the general elections are held in November, and in using the same election officers in both elections?

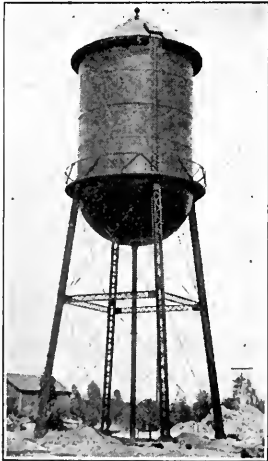
ANS. In reply to your inquiry of Sept. 17th, will say that we are inclined to think that Section 259 of your charter makes it mandatory to submit an ordinance under the Referendum either at your next general municipal election or a special municipal election called for that purpose, and that you could not lawfully

submit it at a general state election.

Our Mr. Mason, however, believes that you could call a special municipal election for the same day as the regular state election in November, and provide for the same election officers, precincts, etc. You would have to provide separate ballots and separate ballot boxes and each voter could be given both ballots. He is quite sure this has been done.

Q. Calling your attention to Section 21, Article 1 of our Constitution, also to Section 1, One-fourth, Article 13. Is the last Section valid, if so does it apply in cities, 6th class, when the same parties have had their exemption at the County Assessor's office?

ANS. Section Twenty-one of Article One of the Constitution and Section One and One-fourth of Article Thirteen are not in conflict, as privileges or immunities to discharge soldiers would not be regarded as privileges or immunities to a class which would not be grant-



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ed to other citizens upon the same terms. The last named section is valid and applies to cities of the 6th class; the exemption covers municipal taxes besides county and state taxes.

Q. The Town of Susanville some few years ago installed a sewer system, and immediately passed an ordinance requiring that all water-closets and the like be connected with said sewer. Up to date there has been no action commenced for the non-compliance with this ordinance, but it has fallen to my lot to bring the first action, and this is against a certain person that I am positive will fight it to a finish. I can either bring an action in the Recorder's Court for the violation of an ordinance, or I can bring it in the Superior Court to abate a nuisance. What I would like very much would be to obtain a form of complaint that has been tried and not found wanting. I prefer to bring the action in the Superior Court, and if you have access to such a complaint I would greatly appreciate it if you would send me a copy as soon as you can conveniently do so, and if there are any charges connected with it I will gladly pay the same. Thanking you for all past favors, I am,

ANS. In reply to yours of Sept. 2nd, will say that we do not find a form which covers your case exactly. Mr. Mason has requested me to advise you that you should be quite sure that failure to connect with the sewer in this particular case constitutes a nuisance. The mere declaration by the Board of Trustees that failure to connect with the sewer should be deemed a nuisance is not sufficient; you have to prove that it is actually a nuisance and that is some times a very hard matter to do. In other words, you will have to show conclusively that the failure of the party in question to connect with the sewer is a nuisance per se. Mr. Mason advises you to bring an action against him for violation of an ordinance. You can make that hold.

Q. We have a butcher here who is complaining about residents selling some pork which they have grown, also a complaint against a resident of the Town of Hercules who grows sheep, who will sell any four resi-

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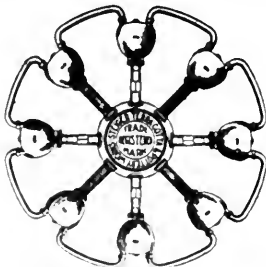
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dents of Pincle a whole lamb, they to divide it as they see fit. Now these parties have no place of business and are not making a business of this, but the butcher insists that they should be licensed, will you kindly let me know whether they are liable to a license when they grow their product?

ANS. Replying to your of Aug. 26th, we would say the only parties from

whom you may collect a license tax are those who are transacting and carrying on business within the town. The courts have decided that an occasional sale of goods does not constitute carrying on business. It is our opinion, therefore, that they are not liable to a license, for that reason.

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SAN FRANCISCO

What the Cities are Doing

Larkspur is going to build a new city hall and improve the streets.

Ferndale is going to pave three blocks of streets with oil-macadam.

Emeryville citizens are going to wage campaign for a clean city.

Burlingame has decided to call an election to vote \$175,000 for waterworks.

El Centro has voted \$40,000 bonds for the improvement of the water system.

Placerville trustees are in favor of doing street paving to the amount of \$16,800.

Richmond city council is about to take up the matter of amending the charter.

Willits has voted \$10,000 bonds for building new school house and purchasing site.

Watts wants name changed and is talking of calling an election to vote upon that proposition.

Long Beach is talking of calling an election to vote more stringent laws regulating the liquor traffic.

Porterville has decided to reduce municipal water rates. This is the third reduction within the past four years.

Oceanside residents have come forward with a petition for an election to vote on the establishment of a municipal bar.

Berkeley is talking of calling an election to vote bonds for the improvement of the sewer system by providing adequate outfall sewers.

San Bernardino's Chamber of Commerce has unanimously endorsed a plan to call a bond election for \$75,000 for the construction of a city hall.

Bishop has voted \$32,000 bonds for municipal purposes including extensions to the sewer and water systems, street improvements and fire apparatus.

Vallejo has adopted resolutions for the paving of 16 streets, the last of the street work to be done this year. This will make 87 blocks of streets paved since July 1, 1911.

Red Bluff may recall two trustees because they voted in favor of revoking licenses granted to lunch wagon proprietors who make their living by peddling lunches on the street corners.

San Diego has voted \$2,500,000 bonds for the purchase of a part of the Southern California Mountain Water Company's system and approved a contract for the purchase of the remainder of the company's property for \$1,500,000.

Riverside County is talking of a \$1,500,000 bond issue for good roads in case the State Highway Commission approves the route from Los Angeles to Yuma as selected by those promoting the Ocean-to-Ocean Highway movement.

Berkeley's municipal well has been completed. The object of the well is to furnish water for sprinkling purposes and to make a test of the possible supply at that point in case the council should decide to construct a municipal swimming pool there.

Redlands has formed an organization whose aim and object is to make Redlands the "cleanest city". The Trustees have decided to appoint an inspector who will make an inspection of property in the city and see that it is kept in a clean and sanitary condition.

San Leandro's Chamber of Commerce has filed a complaint with the Railroad Commission against the Pacific Telephone & Telegraph Co. The complaint states that the company maintains a "dilapidated, antiquated, inefficient and insufficient telephone system."

Pasadena's citizens have under consideration plans for establishing a municipal market where ranchers can dispose of their goods without having to pay a city license. It is expected that the market will have as one of its sources of supply Pasadena's big municipal farm.

Berkeley is planning many municipal improvements, including the construction of an incinerator to cost \$60,000; \$7,000 is to be spent for parks and pruning; \$12,000 will be spent in the police department; \$5,000 is to be spent in perfecting the signal system of the police department and a meat and food inspector will shortly be appointed.

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

Write for Catalogs. Mention Pacific Municipalities When Writing

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S. F.

Asphalt Machinery

A. L. Young M'chy Co., 26-28 Fremont St., S. F.
Barber Asphalt Paving Co., S. F. & L. A.

Arch. Terra Cotta

Gladding, McBean & Co., Crocker Bldg., S. F.
Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.
N. Clark & Sons, 112-116 Natoma St., S. F.

Automobile Public Service Wagons

American La France Fire Eng. Co., 660 Mission St., S. F.
Gorham Eng. & Fire App. Co., 48 Fremont S. F.
Webb Motor Fire Apparatus Co., 550 Montgomery St., S. F.

Bitulithic Pavement

Warren Brothers Company, Los Angeles, Cal.

Concrete Construction

Esterly Con. Co., Inc., 717 Market St., S. F.

Concrete Mixers

Barber Asphalt Paving Co., S. F. & L. A.
Parrott & Co., San Francisco & Los Angeles

Constructing Engineers

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.
American Engineering Corporation, 57 Post St., S. F.
Stephen E. Kieffer, 1st Natl. Bank, Oakland
Burns & McDonnell, Riverside, Cal., K. C., Mo.
Roberts & Dennicke, Sheldon Bldg., S. F.
Shipman, Denny & Rhame, Atlas Bldg., S. F.

Culverts

Cal. Corrugated Culvert Co., Los Angeles and W. Berkeley
Standard Corrugated Pipe Co., S. F. & L. A.
U. S. Pipe Co., S. F.

Dump Carts and Wagons

A. L. Young M'chy Co., 26-28 Fremont St., S. F.

Electrical Plants & Machinery

A. L. Young M'chy Co., Fremont St., S. F.

Engines

Dow-Williams Engine Co., Sheldon Bldg., S. F.

Engravers and Bond Printers

A. Carlisle & Co., 251 Bush St., S. F.
Sierra Art Eng. Co., Front & Com. Sts., S. F.

Fire Department Equipment

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Engines

Gorham Eng & Fire App Co., 48 Fremont St S. F.

Fire Hose

Gorham-Revere Rubber Co, 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.
Gorham Eng & Fire App Co., 48 Fremont St S. F.
The Gutta Percha & Rubber Mfg. Co., 34 Fremont St., S. F.
Enreka Fire Hose Mfg. Co., 54-58 Fremont St., S. F.
Bowers Rubber Works, San Francisco

Fire and Police Boats

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Pumps

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Gasoline Engines

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Hydrants

Water Works Supply Co., Monadnock Bldg., S. F.

Inspections and Tests

Robt. W. Hunt & Co., 418 Montgomery, S. F
Smith, Emery & Co., 651 Howard St., S. F.

Municipal Accountant

William Dolge, C. P. A., 311 California St., S. F.

Municipal Castings

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Municipal Engineers

Sloan & Robson, Nevada Bank Bldg, S. F.
Roberts & Denicke, 461 Market St., S. F.
Shipman, Denny & Rhame, Atlas Bldg., S. F.
Smith, Emery & Co., 651 Howard St., S. F.

Municipal Printers

A. Carlisle & Co., 251-253 Bush St., S. F.

Municipal Water Works

Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Smith, Emery & Co., 651 Howard St., S. F.

Packings

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Pavement Materials

Barber Asphalt Paving Co., S. F. and L. A.
Warren Brothers Company, Los Angeles, Cal.

Pipes

U. S. Iron Pipe & Foundry Co., 701 Monadnock Bldg., S. F.

Pumping Machinery & Supplies

Geo. E. Dow Pumping Engine Co, S. F. & L. A.
Water Works Supply Co., Monadnock Bldg., S. F.

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 Fred Medart Mfg. Co., St. Louis, Mo.

Road Machinery

The Good Roads Mach'y Co., Ft. Wayne, Ind.
 A. L. Young M'chy Co., Fremont St., S. F.
 Barber Asphalt Paving Co., S. F. & L. A.

Road Oil

Standard Oil Co., S. F.

Roofing

Barber Asphalt Paving Co., S. F. and L. A.

Rubber Goods

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Bowers Rubber Works, San Francisco

Sanitation Expert

Harold Farnsworth Gray, Berkeley, Cal.

Scrapers

A. L. Young M'chy Co., Fremont St., S. F.

Septic Tanks

Pacific Flush Tank Co., Chicago.

Sewage Pumps

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Sewer (Concrete)

Esterly Con. Co., Inc., 717 Market St., S. F.

Sewer Fittings

Pacific Flush Tank Co., Chicago.

Sewer Pipe and Terra Cotta

Gladding, McBean & Co., Crocker Bldg, S. F.

Steiger Terra Cotta Co., Mills Bldg., S. F.

N. Clark & Sons, 112-116 Natoma St., S. F.

Sewer Systems

Sloan & Robson, Nevada Bank Bldg., S. F.

Street Sweepers

A. L. Young M'chy Co., Fremont St., S. F.

Suction Hose

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Water Meters

Neptune Meter Co., S. F. & L. A.

Water Works Supply Co., Monadnock Bldg., S. F.

Water Tanks and Towers

Des Moines Bridge & Iron Wks., Monadnock Bldg., S. F.

Water Works Equipment

Water Works Supply Co., Monadnock Bldg., S. F.

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Wires

John A. Roebling's S6ns Co., S. F.

Water Works Supply Co., Monadnock Bldg., S. F.

Valves

Water Works Supply Co., Monadnock Bldg., S. F.

Gorham-Revere Rubber Co., 50-60 Fremont St., S. F.; 1237 S. Olive St., Los Angeles.

Sidewalks (Cement)

Esterly Con. Co., Inc., 717 Market St., S. F.

Steel Protected Concrete Co., Phila., Pa.

Street Signs

A. L. Young Mch. Co., S. F.

Cal. Metal Enameling Co., Bairdstown, L. A.

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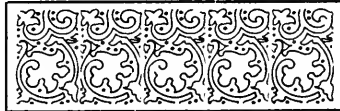
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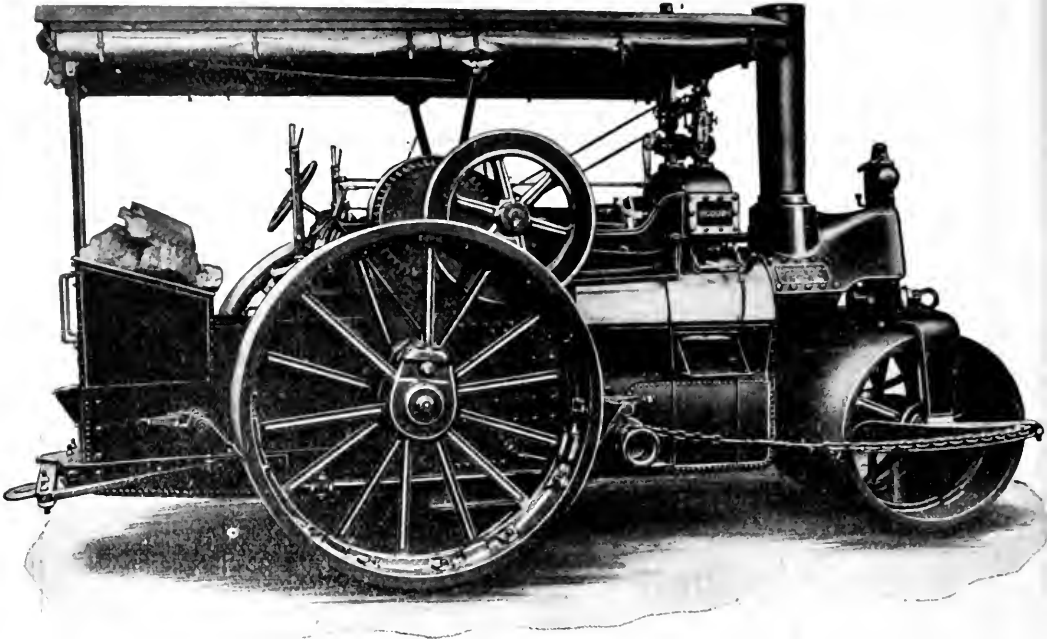


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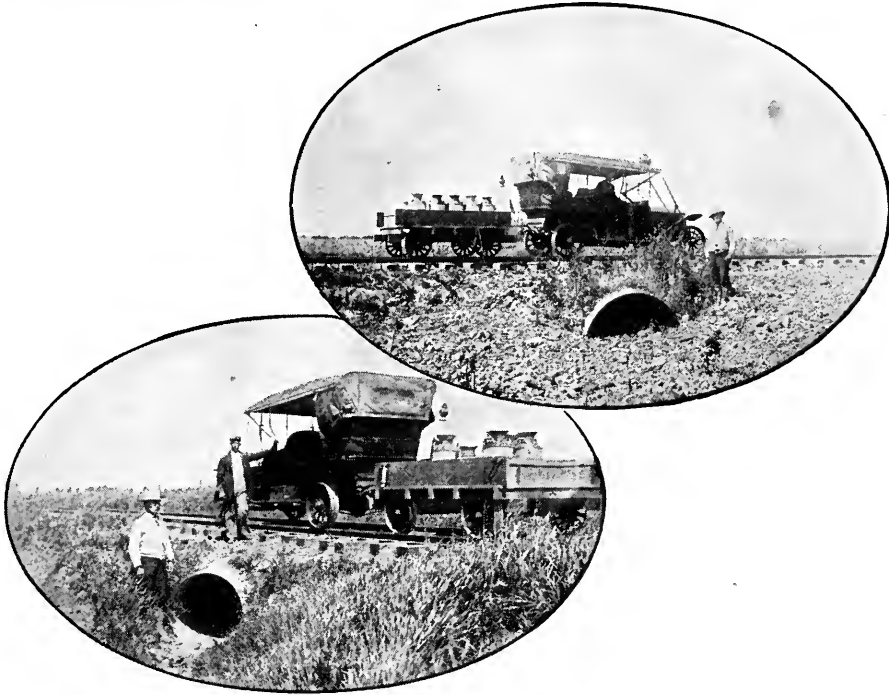
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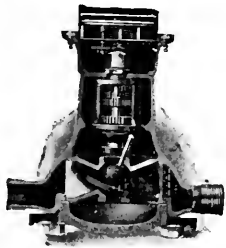
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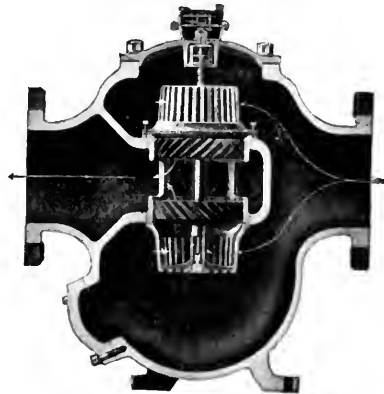
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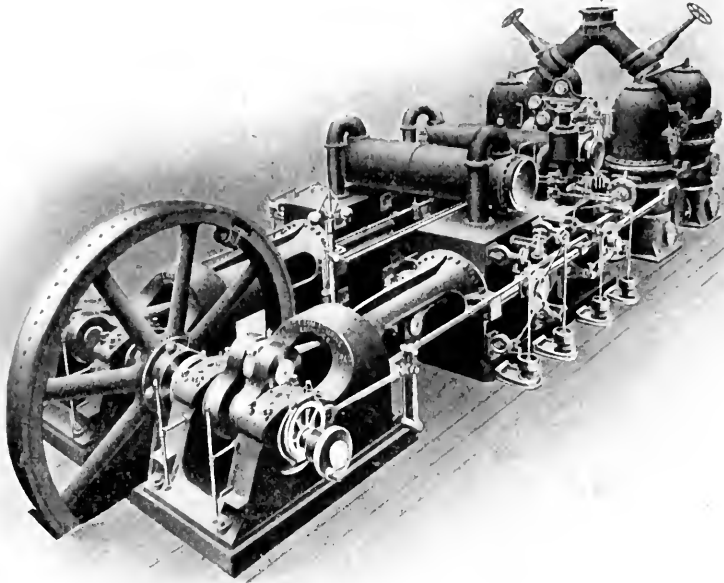
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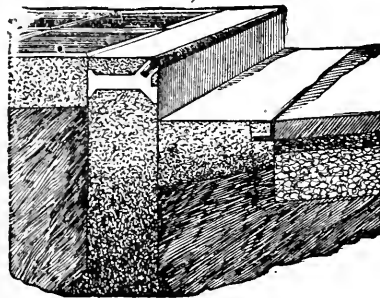
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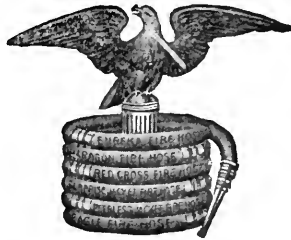
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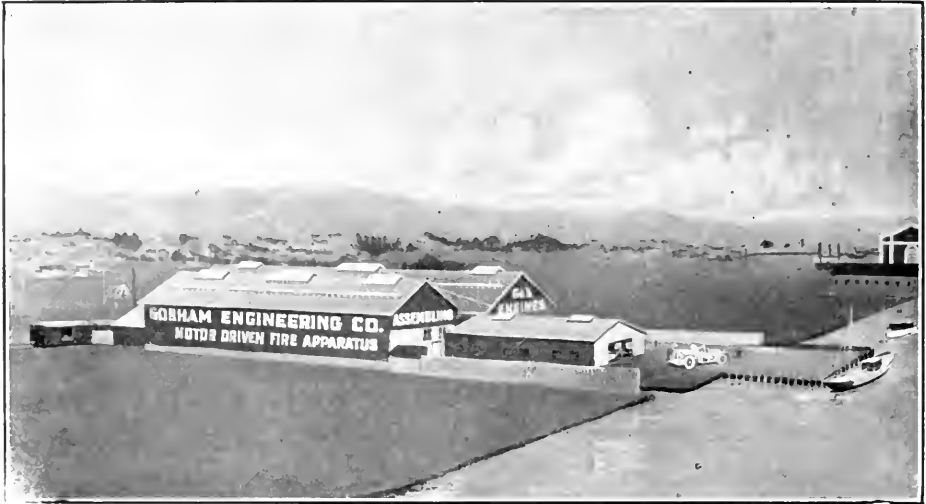
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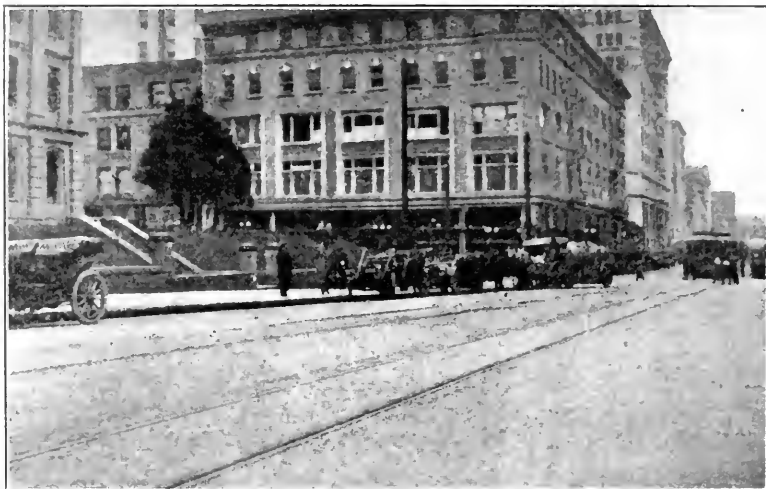
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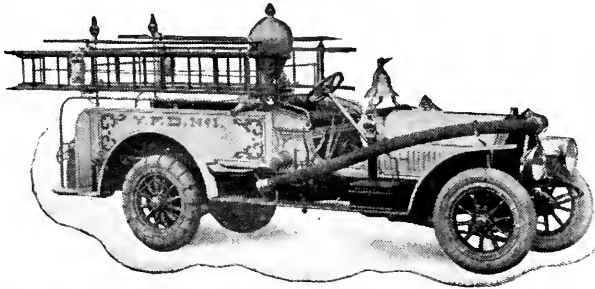
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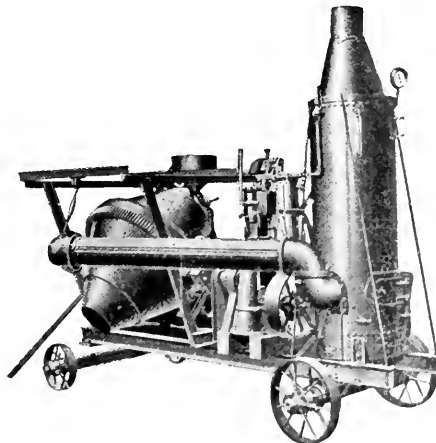
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VOL. XXVI

FOURTEENTH YEAR

No. 11

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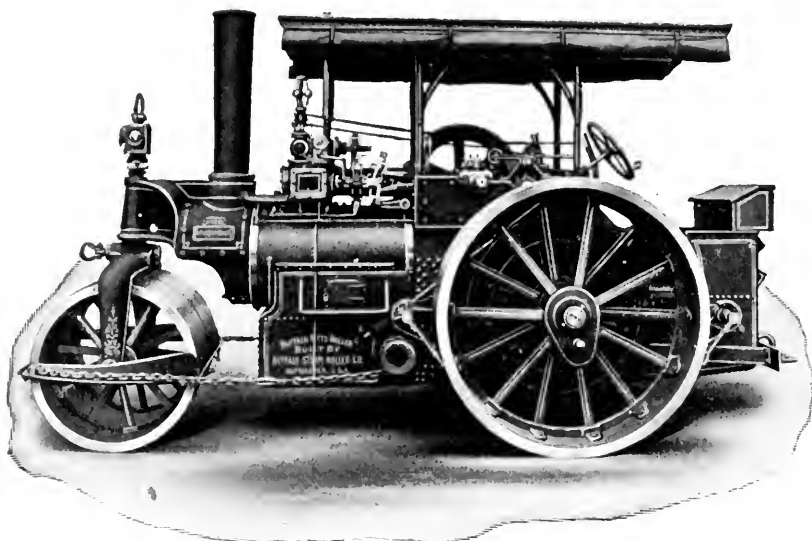
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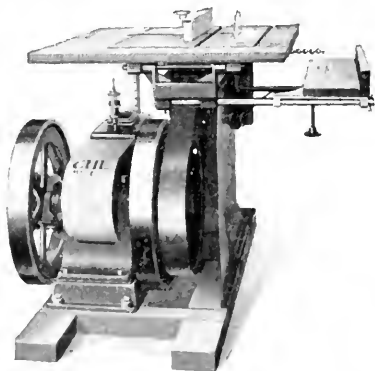
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Los Angeles, California

PACIFIC MUNICIPALITIES

A Journal for Progressive Cities

VOL. XXVI

NOVEMBER 1, 1912

No. 11

PROCEEDINGS OF THE FIFTEENTH ANNUAL CONVENTION OF THE LEAGUE OF CALIFORNIA MUNICIPALITIES

HELD AT THE UNIVERSITY OF CALIFORNIA,
Berkeley, Cal., September 23 to 28, Inclusive, 1912

PHYSICAL RECORDS OF STREET CLEANING SERVICE AND THE VALUE OF UNIFORM ACCOUNTING

BY D. D. KELLOGG, AUDITOR AND ASSESSOR OF PASADENA

The physical records of street cleaning services are of equal importance with the financial records as a means for ascertaining administrative efficiencies. Neither the one nor the other is in itself adequate. The financial records, no matter how ably constructed, cannot in themselves provide a measure of the services or utility received in return for an expenditure. Such a measure can be provided only by the maintenance of accurate records of physical facts of street cleaning and the interpretation of the financial data in the light of the physical data.

These physical records should show each kind of cleaning, whether machine or hand sweeper, or pickup, the total area cleaned, the number of times the area is cleaned per year, and the gross area or product of these should be known. But these physical facts alone are not adequate to properly interpret

the efficiency of street cleaning services. A number of other important factors must be considered. The kind of pavement subject to cleaning is important. All city reports on street cleaning should show the kind of pavement cleaned, its area, and the number of cleanings per year. Also the condition of repair of the pavement subject to cleaning. It is evident that the problem of street cleaning is closely related to that of paving. A certain kind of paving or gutter may be cheaper to lay, but far more expensive to keep clean and thus in the end be more expensive than one whose initial cost is somewhat greater. It would doubtless pay a city well to keep its pavements in good repair.

Another factor that should be shown is the proportion of the cleaning area lying in the business and in the residence section of the city, for the work of cleaning, because of disturbance in the

work and for other reasons, is more expensive in the business sections. Information as to the extent of the duplication of cleaning should be required.

Almost the entire area of streets subject to cleaning is cleaned by two methods—sweeping and flushing, or both kinds of sweeping, hand and machine, or a combination of these. The exact area of such duplication should be known.

Information is required showing the expenses of the disposing of street sweepings, the character of the sweepings, etc. In case of gutter cleaning, cleaning of public alleys, etc., detailed information is required to explain the expense shown by the accounting covering each of these classes of cleaning.

Accurate record should also be kept of the number of men employed, amount of wages paid, number of horses and kind of equipment used in the various classes of work. In order that the results obtained by contract work may be compared with similar results from work done by the city, it is necessary that accurate records of the physical facts of contract service be maintained. Various physical records which have been suggested should be made with the view to giving expression to the same unit which have been incorporated in the accounting scheme. Little of value can be learned from the accounts which show the cost of each kind of street cleaning when the physical records of the area cleaned, all kept as a total for all forms of cleaning only. To know that a certain amount was expended for sweeping by hand without knowledge of the amount of such sweeping done is obviously of little use. Daily reports of the work done should be made by the foreman or inspector in charge of the work. The information contained in the daily report should be in practical form.

The bookkeeping of the physical data

is and ought to be as important as the bookkeeping of the financial data. Unfortunately this is not very generally regarded of importance. Few city officials seem to have awakened to the significance of accurate records of the physical data. The information revealed by these two kinds of records, that is, the financial unit of the cost and the physical unit of service rendered for such cost, is the heart of the measure of efficiency of the administration of all public service.

A report is essentially an informational document, no other reason or excuse exists for its publication. If this be true, many public reports of today are misnamed. Many of them are mere records of cash paid out, mostly summaries at that, with general information which frequently lacks relevancy, or is presented in such voluminous but meaningless detail as to confuse the public and conceal the financial data. Concise efficiency is needed, without it the public grope in the dark. Proper light can best be thrown on public administration through the publication of clear brief studies of efficiency as made possible by the maintenance of financial and physical records as has been suggested.

Of what value in the measurement of administrative efficiency it is to know in great detail the cost of labor of a given type when the work performed by that labor, as expressed in the things accomplished, is not known?

Of what value is information as to the cost of machine sweeping when no accurate record has been kept of the areas cleaned, the character and conditions of pavements cleaned, or other vital factors which enter into the cost of such public service.

The City which expends large sums for the improvement of its financial records and neglects its physical records

acts in deplorable ignorance of the real ends to be obtained by such improved accounts.

The end sought is a comparative standard for the measure of efficiency in public administration. By requiring officials to present concise, clear interpretations of the results of their administration, based upon an intelligent correlation of the financial and physical facts, the real end in view will have been attained.

The form of these records should be uniform as between cities to make them of value as to comparison. Uniformity is the fundamental requisite of public records designed to provide measures of administration efficiency. Once let the public grasp the idea and the public officials will be compelled to develop their system with a view of uniformity.

Doubtless the form of accounting which has been suggested is open to many improvements, however, it is the ardent hope that a better system than which now prevails be adopted by such cities as may possess real interest and understanding for the larger significance of an accounting system which is an index to administrative efficiency and economy.

In this day of progress and improvement, it is reasonable to expect that progress is made in the line of municipal bookkeeping. That modern systems of municipal accounting and reporting be adopted. Many of our progressive cities are adopting new and improved systems of government, in order to keep pace with the spirit of progress; likewise, it is but reasonable to not only expect but require a more intelligent system of recording the business transactions of our cities, a system that will not only show the financial receipts, disbursements and from what source finances are derived

and from what disbursed, but a complete unit record, physical and financial, so that it may be known just what it costs per unit to perform certain work so it can be ascertained whether a proper return is given for money and labor expended for any or all enterprises undertaken.

Successful and progressive business firms employ systems of accounting and checking so they may know at any time the true condition of their business. There is no good reason why cities should not—but many reasons why they should—employ intelligent and up-to-date systems of accounting, so that they too may ascertain whether they are obtaining proper results in the conduct of the public affairs. There are doubtless many officials who realize the necessity of a better system and would assist in placing its business on a higher level, but their terms of office often are too short or uncertain to attempt the difficult work necessary to make the change—hence the ancient prevailing methods are continued.

It is no easy matter to change a system that has been in use for a long time and which the officials are familiar with—however much it may be desired—and rather than change the whole system or method at once it would be better to make the desired changes at different stages so that employes may become familiar with the work at each stage of progress and so that the rotation of business may not be interrupted or become confused; and to accomplish the best results with the least friction the officials intrusted with this work should be retained until the system is in good working order. And too, to obtain the best results the public should be in harmony with the work undertaken

and assist where possible in making the desired changes.

Unless the public—the tax payers—are interested in knowing the results obtained, there is but little encouragement for the City official to attempt the laborous detail work required to show results accomplished, and it is very natural for the official to pursue the lines of least resistance and leave for the next incumbent to do or otherwise as he deems proper or expedient.

However, from present indications, it may be expected that progressive and enterprising cities will require a more comprehensive system of accounting and reporting than now prevails.

It may not be out of place to here state that Pasadena is installing a system of physical and financial accounting in the different departments of the City—the aim and purpose being to show just what it costs to perform certain classes of work in a given area under the same or different conditions,—for instance, the cost per square yard to clean different kinds of streets—the relative cost of different modes of cleaning—showing which kind of paving, as well as cleaning, is the more economical, taking cost of upkeep and cleaning into consideration, etc. Physical accounting is not confined to the street department only but as far as possible to all departments of the City.



THE LEGITIMATE USES OF A PUBLIC PARK

BY H. G. JORGENSEN, CITY ATTORNEY OF MONTEREY

We can all remember the old family parlor of our boyhood days with its stiff-back chairs, brussel carpets, large framed pictures, and drawn curtains, where no member of the family was allowed to intrude except on extraordinary occasions as the visit of "the minister" or the reception of "Martha's wedding day." Such has been the past idea of a municipal park, but the idea of what a public park should be, also the idea of what a parlor should be has changed.

A public park is no longer exclusively a municipal parlor with beautiful lawns, gardens, and flowers, protected and guarded by signs of "Keep off the grass," "Keep out," "Do not pick the flowers," and the like, but in our more progressive cities it has become a piece of public property for the fullest possible use of the people in their plays,

games, recreations and amusements as well as a place for ornamentation and esthetic beauty. In these days when we are talking of human rights and of "Man's inhumanity to man," we see that it is the duty of our municipalities to furnish a place for healthful, normal and active out-of-door amusements, recreation and games for its people. All over our fair land in the more progressive cities we have seen the spread of this gospel of the duty of the City to furnish its people a place to play. Why not then turn our public parks into playgrounds for the people? At the same time there is no reason why our parks can not be kept as a thing of beauty. There should be lawns, strips of green, flowers and shubbery, but when the real usefulness of a public park can be increased a hundred fold by the installation of ten-

nis courts, croquet, playgrounds, or even a baseball field, isn't it folly and a waste of public money to keep such a place unused. As a matter of fact, all over the United States our progressive cities, where it is possible, are turning their public parks to such uses, securing wonderful returns in the terms of happiness, health and better morals for their people.

But this modern idea has not penetrated some of our smaller cities, especially to that portion of the inhabitants who belong to the last century, and an injunction suit is the result in many cases where such an attempt is made. Moreover, there are some parks where this cannot be done and for that reason I thought it might be well to discuss this subject for a little while here today.

In the first place I desire to discuss the uses compatible with park purposes in those cases where the land has been dedicated as a public park without any restrictions or limitations.

A public park has been defined by the courts as a place for the amusement and recreation of the public, or a tract of land or pleasure ground in or near a city, set apart for the recreation of the public, a piece of ground used by the public for purposes of pleasure, exercise, amusement, comfort, enjoyment, or ornament, a place for the resort of the public for recreation, air and light. Webster's Dictionary.

State Ex Rel Attorney General vs. Schweickardt 19 S. W. 47 at 51, 109 Missouri 496.

Perrin vs. New York Central Ry. Co., 36 N. Y. 120.

Price vs. Inhabitants of Plainfield 40 New Jersey Law, 613.

Elmen vs. Village of Gothenburg 70 N. W. 237, 50 Nebraska 715.

Archer vs. Salinas City, 93 Cal., 43 at 50.

Spires vs. City of Los Angeles, 150 Cal., 64.

Harter vs. San Jose, 141 Cal., 659.

Now what are some of the specific uses which the courts have held to be compatible with public park purposes?

The Supreme Court of our own State in the case of Harter vs. San Jose, 141 Cal. 659, has held that the leasing of a portion of a large public park, namely Alum Rock Park to private individuals for hotel purposes by the City of San Jose where it was evident that the City authorities desired to add to the comfort and attractions of the park for the public was a perfectly legal and legitimate use of a public park; citing with approval, Gushee vs. New York, 58 N. Y. Supp. 967 which held that, "In the control and management of the public parks of the city it is not only perfectly proper to furnish such innocent amusements as may enhance the pleasure of those who resort to the parks, but such opportunities for rest and refreshment for themselves and their animals as may be required," and "Whether in the doing of these things they shall act themselves, or whether they shall be performed by private persons under an agreement with the park authorities, must be left very largely in the discretion of those who have control of the parks. If in their judgment, it shall seem better that the furnishing of refreshments shall be farmed out to some person for a consideration, subject to the control of the park authorities, it cannot be said as a matter of law that such discretion is beyond their power."

See also the case of State vs. Schweickardt (Supra) where in a similar case the court held that such "discretion is not subject to judicial revision or reversal."

In the case of Sherburne vs. Portsmouth, 72, N. H., 539.—58 Atlantic, 38,

it was held that the court could not control the discretion of city officials by declaring that the leasing of a public common for a baseball park for a reasonable time was a diversion, saying that whether certain use of a public park is a diversion is a question of fact.

In the case of *Law vs. San Francisco*, 144 Cal., 384 at 390 our Supreme Court held that it was within the power of a municipality to acquire lands "for public parks to be used as children's playgrounds." In that case the court said, "No authority is cited by appellant, and it may be confidently asserted that none can be found, sustaining the contention that the use of such parks for such purposes is in anywise unlawful — We are of the opinion that land may be acquired for park purposes, and that it is a part of park purposes to devote some of those lands to children's parks. The general public is not thereby denied access to and use of these lands, and with as little justice can be heard to complain of the use made by them as could the children, because in other parks were provided for adults pleasures by way of speed tracks, automobile roads and bicycle paths, in the enjoyment of which they could not share."

That the erection of public library, to which the visitors to the park may have access is consistent with the public enjoyment of a park and tends to enlarge it was decided in the case of *Spires vs. Los Angeles*, 150 Cal. 64. In that case the court said:

"As a matter of public knowledge, we are aware that the erection of hotels, restaurants, museums, art—galleries, zoological and botanical gardens, conservatories, and the like in public parks is common, and we are not pointed to any authority where it has been regarded as a diversion of the legitimate uses

of the park to establish them, but, on the contrary, there establishment has been generally recognized as ancillary to the complete enjoyment of the public of the property set apart for their benefit. To instance, in Central Park in New York City there is a museum of natural history and a metropolitan art museum; and in Golden Gate Park in San Francisco, a museum, children's playgrounds, and buildings used in connection with it, and a conservatory. We mention simply these parks and particular features devoted to the public enjoyment, although many other parks might be mentioned where similar buildings have been erected.

"Now, we are at a loss to perceive why, if the erection of museums, conservatories, and art galleries is sustained as in aid of the enjoyment of property dedicated to the public, the erection of a public library on a public park should be prescribed. Certainly the latter is as much in aid of the enjoyment of the public as the former, and, as far as the right of public access to it is concerned, stands on entirely the same footing. Of course, if a municipality were undertaking to establish on this property a city hall, fireengine station, hospital, or jail; endeavoring to devote the property (assuming it was dedicated for a public park) to the erection of municipal buildings or offices or structures for use in the transactions of municipal business, a different question would be presented, and there would be little hesitancy in holding that it could not do so. But using a portion of said dedicated property for a museum or art gallery or conservatory or library, designed for the recreation, pleasure, and enjoyment of the community in general, is an entirely different proposition, and is a distinction generally recognized by the authorities. Public buildings such as we have last mention-

ed are for the benefit of the same public that enjoys the advantages of the park; there is nothing exclusive about it, and they are in fact erected and maintained as additional and ancillary means to promote the recreation and pleasure of those to whom the enjoyment of the park is devoted."

Laird vs. Pittsburg, 205 Pa. 1. 61 L. R. A. 332 in accord.

It has likewise been held that the erection of a historical or military memorial is compatible with park purposes. *City of Hartford vs. Marlen*, 76 Conn. 599. 57 Atl. 740 *Parsons vs. Van Wyck* 67 N. Y. S. 1054. In a *Washington monument Fund*, 154 Pa. 621, 20 L. R. A. 323.

It is therefore clear that a public park dedicated without restrictions may be used for any purpose which is for the public amusement, recreation of all kind, enjoyment or pleasure, or for any purpose that would increase the comfort of the public therein and the courts allow city officials the widest possible latitude in determining what is a legitimate park use.

Where land used for a public park has been purchased by the Municipality in fee simple and then dedicated by the Municipality to park purposes with certain restrictions, the city may thereafter remove those restrictions and enlarge the use or may wholly abandon the land for park purposes and devote it to an entirely different use. But where a private party conveys or dedicates land for a definite public purpose, it can not be diverted to another and different purpose not connected with the original dedication. The title in such case remains in the original owner, subject to the public use. (*Henter vs. San Jose Supra.*) So likewise a distinction must be made between the cases where a public square is dedicated without restriction

and cases where the dedication is restricted to a particular purpose. In the former case any reasonable public use may be made of the square, but in the latter case it must be devoted to the particular purpose indicated by the dictator. (*Riverside vs. McLean*, 210 Ill., 308; 71 N. E. 408).

Now many of our public parks are parks which have not been purchased by the city outright, but they have been dedicated by private individuals and therefore in these instances, we must examine the dedication to ascertain whether or not any restrictions have been imposed. If the dedication has been made by a deed or plat the meaning and effect of the instrument are questions for the court and if the dedicator uses words which have a well-defined meaning he is precluded, as in the dedicatee by the meaning of those words and no parol evidence as to their meaning or as to the intention of the dedicator or his declarations is admissible to explain or limit their meaning. This is true whether it be a map or plat or a deed. Thus a map was filed showing a railroad track and a space resembling a street marked "Railroad Avenue" and it was held error to admit oral testimony explaining their meaning. (*Baltimore, etc. Ry. Co. vs. City of Seymour* 154 Ind., 17:55 N. E. 953) so with the words "Court House" (*San Leandro vs. Le Breton*, 72 Cal. 170) and "Meeting House Square" (*Marysville vs. Wood*, 102 Ky., 263:80 Am St. Rep. 355).

The laying out of land into lots and blocks, filing a map thereof and selling lots with reference thereto is an irrevocable expressed dedication of the land marked thereon as "streets" "public squares," "parks," and the like for their respective public uses.

Meyers vs. Kenyon, 7 Cal. App. 112.

Town of San Leandro vs Le Brenton, 72 Cal. 170.

Central Ry. Co. vs. City of Elizabeth, 37 N. J. L. 181.

Archer vs. Salinas City, 93 Cal. 43.

Village of Riverside vs. McLean, 210 Ill., 308; 71 N. E. 408.

Pope vs. Union, 18 N. J. E. 282.

Price vs. Inhabitants of Plainfield, 40 N. J. L. 613.

Steel vs. City of Portland, 23 Oregon 176; 31 Pacific 479.

As the word "Park" or "Public Park," "Central Park," "Public Square," and the like have a well-defined meaning, where such words are written on a map and lots after conveyed with reference thereto no parol evidence is admissible to show their meaning or the intention of the dedicator. The court said, in the case of Price vs. Inhabitants of Plainfield (Supra) where a map was filed on which the word "Park" was written on one of the blocks, and lots were conveyed with reference to the map, "Its meaning is a place for the resort of the public for recreation, air and light."

"Neither the grantors nor any person claiming under them, can come in, and against and such grantee, or against the public, set up an intent different from that which the word adopted naturally imports. There is no such uncertainty of meaning as will let in parol testimony to vary or modify it. If the grantors had a different intention, that should have appeared from the papers themselves. The popular and natural meaning should have been so modified, in accordance with such intention. I think that all parol testimony of such intention was incompetent to vary the purport of the mapping, filing and conveyances, and that a dedication was conclusively affected by such acts." (See also Pope vs. Union (Supra)).

In this latter case the court said that an intention to qualify the dedication concealed within the breast of the owner, and not expressed in some way on the map must be held as an absolute dedication. Likewise, in the case of Steel vs. City of Portland (Supra) it was held in that case where the owner of land had laid it out in lots and streets and in the plan or map thereof filed with the public records, though not acknowledged upon which was designated a certain portion as "Park" and had afterward conveyed lots and blocks by reference to such plan, that such acts operate as a dedication as a public park and his successors in interest could not after a lapse of more than twenty years, set up a different intent as against the public. "The popular and natural meaning when so used," the court said, "is a piece of ground set apart for the enjoyment, comfort and recreation of the inhabitants of the city or town in which it is located. These acts operated as a dedication of the land for public park."

It should be borne in mind that where the dedication is an implied and not an expressed dedication, as in case where the owner has acquiesced in the use of land for certain park purposes as an ornamental park, or as a park for the playing of particular games, or a definite sort of recreation, the use is strictly limited to that definite use and all the surrounding circumstances, the acts and declarations of the dedicator are in all such cases admissible to show the limited character of the dedication, and likewise where the character of the dedication of a public park is limited by the map, plat or deed in an expressed dedication its use must be limited to the purposes set forth in the dedication. But in cases where the land has been dedicated, as above set forth, either by deed, map or plat as a "park," "Public Square,"

"Court Square," or "Central Park," and the like, the land is dedicated without restrictions as a public park and it may be used for any of the purposes for which a public park may be used and

the authority of the Municipality to regulate within these limits is unlimited, and the courts allow the city officials the widest possible latitude and discretion in all such cases.



THE PREFERENTIAL SYSTEM OF VOTING

BY WALLACE T. RUTHERFORD, CITY ATTORNEY OF NAPA

In these United States the question of "voting," and how to have our electors cast their votes at our elections, particularly at those elections held in our municipalities so as to express the choice of the majority for those candidates who are qualified, without being hampered by political designations, or politicians, has been receiving the attention of large numbers of public spirited men who desire to have only competent officials in our public offices.

Political bosses and financiers who desire to control votes for their own political and financial advancement, are endeavoring to prevent the repeal of all those systems under which a voter's political affiliations are appealed to. They do not want the character, opinions and standing of their candidate inquired into too closely, but would have the voter cast his votes for their candidates for all the offices to be filled with one cross, cutting out the investigation of the qualifications of each individual seeker after office. What has been the result—unqualified workers for the public, grating at the public crib and enrichment of bosses and public service corporations. The actual will and desire of the people is not given very much consideration, but the will and pleasure of the political boss is carefully fostered and more than sufficiently financed. In the Great State

of California the people are coming into their own—the political circle placed at the top of party column has been erased from out State and County ballots, and if the people of the State of California can remain faithful to those who are striving to place the political power in their hands, and not kill the "goose that lays the golden egg," before the work is accomplished, the party circle will never again appear upon our State and County ballots, but we shall choose our candidates according to their qualifications and not according to their political affiliations. When voters must inquire about the qualifications of their candidates and cannot be guided by Party designations, just so soon will the influence and power of the political boss be reduced to a minimum.

Municipal Corporations have for some time been in the vanguard of the movement to eliminate the politician from their municipal affairs. A number of systems have been placed in operation in municipalities in all parts of the United States to curtail the power of the political boss, in some instances to practically wipe him out of existence, and in so far as the will and influence of the politician has been eliminated, just so far has the will of the people to be served honestly and faithfully by its

somewhat complicated in description. It allows full freedom to every one who desires to seek public favor; it effectually shuts out all party affiliations and makes a candidate stand upon his own character and qualifications. It practically prevents contests between two, or more, political parties or public service corporations, for control of the City government. It does away with the harassing turmoil and expense of two elections. It prevents candidates from making effective working combination with paid workers at the polls, and in transporting voters. It provides for a majority vote to elect on first and second ballots and limits all expenditures to a definite sum. If it were not for the fact that the flesh is weak it would create an ideal government.

At the first election held in Grand Junction, Colorado, when the first choice votes were counted for Mayor, no one had a majority; when the second choice votes were added to the first there was still no majority, so that it was necessary to add the third choice votes to elect the Mayor. He represented the choice of the greatest number of people, and from all accounts was the most qualified and competent man for the place. The professional politicians did all in their power to defeat him by attempting to make combinations, but in spite of them he was elected Mayor.

To have a city with large annual expenditures, where the influence of the political boss and the public service corporations at elections is reduced to a minimum, where the qualifications of each candidate to fill the office for which he aspires occupy a prominent place before the electors, and where all political affiliations calculated to assist the candidate to gain votes to which he would

not otherwise be entitled or get because of his unfitness for the office, totally erased from the ballot, would be a situation to make professional politicians throw up their hands and cry for mercy. With the preferential system of voting in full force a qualified candidate would stand a better chance of being elected than he would under the system now generally known as the "Berkeley System" in full force in many of our recently re-chartered Cities, under which two elections, a primary and general, are held, and Party affiliations take a prominent position.

Party affiliations, party principles, Republican, Democratic, Union Labor or Socialist, ought not to cut any figure in the election of our municipal officials, as the principles of a party adopted by a candidate do not in any manner enter into the performance of his duties under a municipal charter, as he must obey the provisions of the Charter prescribing his duties and manner of their execution.

Wherever party affiliations take a prominent part in our municipal elections partisan newspapers advocate the election of only those candidates nominated by the party with which *they* affiliate, generally disregarding a candidate's unfitness to fill the office. I therefore say, God speed the time when we shall have a ballot in our Cities and Counties which will not remind us of the politics of our candidates, but will enable us to look without reservation to their general fitness for the positions they desire to fill, and I believe, in the "Preferential System of Voting," as adopted by Grand Junction and Spokane we have a System that meets such requirements.

THE WEST AS WORLD-BEATERS IN ENGINEERING

BY ROBERT SIBLEY, PROFESSOR OF MECHANICAL ENGINEERING,
UNIVERSITY OF CALIFORNIA AND CHIEF EDITOR OF THE
JOURNAL OF ELECTRICITY, POWER AND GAS

(A Paper Delivered before the League of California Municipalities at University
of California, Berkeley, Cal., Sept. 25, 1912)

The age of man has long since been said to be three score years and ten. Scarcely sixty years, or in other words, scarcely the life of one man has passed since the first railroad bridge was thrown across the Alleghany River. Loud were the protests of competing hack-drivers and citizens who sympathized with them. This bridge brought together the tracks from Ohio and Pennsylvania; it brought them together but could not join them for the Pennsylvania State Legislature had ordained that the gauges should be different fearing that the rolling stock of local companies might wander out of sight and loose itself. Sixty years ago engineering could more correctly be called an art than a science.

Let us for the moment on the other hand scan the horizon of water power development in the West. Only those who have scaled the lofty summits of the snow-capped Sierras, seen the massive barriers of rock crowned with wind-worn timber, and noted the tantalizing rays of the early morning sun sifting through the rocky pinnacles and casting the deep, clear contrasts in the canyons below can realize what exquisite beauty really is. Yet it is not for the purpose of picture beauty that I read this paper this evening but rather to set forth the wonderful powers latent in Nature's bountiful water falls which suggest a beauty almost beyond a description in words. The beauty is not that of a picture formed for the admiring eye but rather a beauty realized from a consideration of Nature and her evident endeavor to relieve mankind from his crushing burdens. A beauty which not only delights the eye but touches the heart when we contemplate Nature's bountiful provision for man. Our theme then is the water power whose captive power drives the industries of the West.

Such a beauty overcomes the power expert when he views from some point of eminence the hundreds of miles of drainage area feeding the rushing rivers which hurry onward in their flight to the loud rushing Pacific. The deep canyons no longer appeal to him as mere masterpieces of nature for ornamental uses but now he sees in them prospective tunnels, overhanging flume lines, syphons which will cross the intersecting canyons and a thousand other engineering structures which will aid him in harnessing these untold powers and making them of use to his fellowmen.

The mere question of being able to harness these powers and deliver them at the proper figure is to the true engineer but a side issue. It is rather the thought of being able to utilize these waters over and over again for hundreds of years to come that holds him spellbound in his work. As he straps on his leg boots and throws his mountain transit over his shoulder he dreams these dreams and as the pack train with its burden secured by the diamond hitch, trail its way up the long winding canyons to the distant reservoirs above, again he dreams of

the good he will be able to accomplish for his fellowman. The beauty of it all is that no matter how many water powers he harnesses; no matter how many canyons he reservoirs, like the widow's cruse of oil his power supply will never diminish but year after year continue to pour its blessings in the way of light, heat and other comforts into the heart throbs of the busy business centers a hundred miles away.

Many have said there is no study more sublime than astronomy, telling of worlds millions of miles away, yet as we gaze upon the masterpieces of engineering accomplishments, on rocky dams running into the hundreds of feet vertical, tunnels conveying water five miles through the rocky pinnacles, flumes constructed along shear cliffs, penstocks taking their water from a point almost invisible in its vertical distance above, we are overcome with the awe-inspiring accomplishments that confront us.

A score of years has not yet passed since Baldwin and Burt constructed the longest distance transmission line in the world, conveying electricity from San Antonio Canyon in Southern California to the City of San Bernardino, distant to the east some twenty miles. What awe and wonder seemed to overcome visitors to this plant in former days! Yet how few years have passed and now we find electrical energy transmitted distances running into the hundreds and voltages in the hundreds of thousands. Even now that little power plant, but a few years ago one of the wonders of the world, has been so far outstripped in the advance of the art that like Goldsmith's "Deserted Village" it stands silently alone in the canyon where formerly it was "monarch of it it surveyed." Its waterwheels lying unshrouded to the cool night air and its concrete foundation work robbed of its former ornamental covering, are silent but impressive monuments of the almost inconceivable advance of modern achievements in the engineering art.

It seems but fitting then in this the twentieth year since the advent of the original installation in San Antonio Canyon that I should detail this evening some of the great engineering feats which make the West stand out preeminent in engineering triumph. It is obvious then that I shall only have time this evening to touch upon a few of these accomplishments. I shall take as my theme those subjects which are closely related to the growth of our great Western cities and their surrounding communities.

These great engineering feats may be classified under three main headings. First, that of water supplies which may be divided into domestic irrigation, fire protection and power uses. The latter subheading of power being still further subdivided into heat and light. My second subdivision is steam generation which is found a necessity in order to supplement the water supply for power development during the dry seasons of the year, and for sudden calls for energy since no successful means have as yet been discovered to store economically great sources of electrical power. My third heading I have called commercial enterprises of our great Western cities which involve such feats as the levelling of the city streets of Seattle and Portland, the rebuilding of San Francisco, the Panama Canal, and the Panama Pacific Exposition.

DEFINITIONS.

In order that we may have no misunderstanding of technical terms this even-

ing, let us for the moment examine our fundamental units. I assume that every one in the audience has some conception of a foot, a pound and a second of time.

As I shall deal somewhat in water measurements this evening, let us picture for a moment ourselves looking into a livid body of flowing water. Let us picture the water as being alive and that each one of the living creatures flowing by our gaze is 1 cu. ft. in content. If now one of these figures passes our vision every second, a second foot of water is flowing by. Much confusion still exists in the public mind as to what constitutes a miner's inch of water. Suffice it to say that a second foot of water, just defined, constitutes 50 miner's inches of water in this state while in many other western states it constitutes 40 miner's inches of water, in each state, however, the statute definitely defines the correct unit.

Energy is defined as being the capacity for doing work and mathematically expressed is the product of a force and the distance through which the force acts. Thus, if I lift one pound thru one foot, I perform one foot pound of work. On the other hand, if before executing this act I am capable of performing this action I say that I possess one foot pound of energy. If now a person weighing 110 lbs. climbs a stairway at the rate of one vertical foot raise every second, he is doing 110 ft. lbs. of work and since 550 ft. lbs. per second constitute one horse power, such a person would be rated as one-fifth of a horse power. Electrical energy is measured in a unit somewhat larger than the horse power which is easily converted thereto, however. For instance 1.34 H. P. represent 1 K. W. of energy and if this energy is utilized through an hour we say that 1 K. W. hr. has been consumed. This in brief is the explanation of the unit used in domestic supply of electric light. Energy, however, is not only measured in K. W. hrs. and in ft. lbs. but also in a unit known as the British Thermal Unit, which is used in all measurements of heat in engineering practice. The quantity of heat required to raise one pound of water one degree Fahrenheit temperature is said to require one British Thermal Unit or B. T. U. of heat energy. By very careful experiments there has been found a definite relationship between heat energy and mechanical energy. Thus it has been found that 1 B. T. U. represents 777 ft. lbs. of energy. Ordinary California oil possesses about 18,500 B. T. U. Hence if we had the energy of 1 lb. of oil beneath us and it were suddenly transferred into motion in our bodies, this energy would be sufficient to cast us upward by means of this one pound of oil alone, a distance of some 18 miles. Indeed, to give a more striking example, the energy represented in 25 barrels of California Oil would be sufficient to cast a human being upward with such force that he would overcome the force of gravity and never again return to this mortal sphere.

The ratio of the actual energy gotten out of an engineering process to the amount of energy put in is known as efficiency. Surprising as though it may seem, modern engineering refinement with all of its nicety is only able to deliver .67 of 1 per cent of the energy to our mental vision as compared to that which starts out latent in fuel oil. (The efficiencies of the system from which this is derived is .83 boiler by .90 steam pipes by .18 turbine by .60 distribution by .05 lights equals .0067.) The inspired writer in the Good Book must indeed have had the modern engineer in mind when he said, "Consider the ant, thou sluggard!" for it is found that the fire-fly located in the southern climates is a far better en-

ginger, for instead of delivering only .67 of 1 per cent of the energy taken in, he delivers almost 10 per cent in the little illuminating exhibit put in action twilight evenings.

In the study of physics we find that there are two forms of energy, kinetic or energy of motion, and potential, or energy of position. The heat placed beneath the furnace of the boiler enters the water in the form of latent or potential energy. When it is taken out as steam this potential energy is converted again in the form of kinetic energy by the turbine blades.

Thus, in going through the nozzle before entering the turbine, the steam is made to expand thereby squeezing out, as it were, some of the potential energy latent in the steam. As no energy is lost in this process, it must become apparent at once as kinetic energy. In doing so the expanded steam is given a tremendous velocity. These particles of steam traveling at this enormous velocity are then allowed to hit against little movable blades which are thereby caused to revolve.

POTENTIAL WATER POWERS OF THE WEST.

In contemplating the potential water power of the West, we stand aghast in speaking of its gigantic proportions. The Commissioners of Corporations at Washington has during the last six months issued a comprehensive report covering all the great water powers of our nation, both developed and undeveloped. In commenting upon these water powers, a certain Eastern publication not long since misinterpreted this report and stated that the water powers already utilized in the Western states of California, Colorado, Idaho, Montana, Oregon and Washington are collectively nearly half of the total power available in these states and that in the Eastern states the ratio of the power utilized to that still unharnessed bears a much smaller ratio. Let us see for a minute and analyze this statement to see if true. In summarizing the powers undeveloped in the states as enumerated we find that there are 16,257,000 H. P. as a minimum and 31,673,000 H. P. as a maximum still undeveloped in these Western streams. The Commissioner of Corporations states that there are at the present time 1,092,804 H. P. harnessed in these states, which is seen to be not quite 7 per cent of the total—far different from nearly half. Again, we challenge the statement that in the Eastern states the water power already harnessed bears a much smaller ratio to the total available in the Western states. Let us examine. Referring to the commissioner's report, by taking the most conservative figures there to be found, that under the "minimum" heading,

From this report it is seen that in the Western states a total of 1,175,904 horsepower are now developed from a possible minimum of 18,996,000. While in the Eastern states 2,840,223 are developed from a possible minimum of 7,760,000. In a word, 30.6 per cent of possible water powers are even now developed in the Eastern states as opposed to only 6.2 per cent in the Western states.

Some difference!!!

Having now in view the gigantic water resources of the West, let us then analyse the subheadings to be treated this evening which, as outlined above, are to consist of irrigation, fire protection and power uses. Here in the West irrigation has wrought its miracle and thirteen million acres reclaimed are annually producing harvests valued at more than \$250,000,000, and supporting in homes

of their own more than 300,000 families. The wealth of that portion of the country which great statesmen in Webster's day were wont to declare worthless is greater now than that of the entire nation in 1860.

I shall this evening now touch briefly upon four of the great projects of the United States Reclamation Service. These represent unique features and each may be considered world-beating in its distinct uniqueness. These four enterprises are:—the Salt River project in and above Phoenix, Arizona, in which is to be found the famous Roosevelt Dam; the Colorado-Yuma project in and about Yuma, Arizona, comprising perhaps the most successful irrigation project to date and involving the great problem of the Salton Sea; the Minidoka project in Idaho in which water is diverted from the Snake River, turned into canals and then by means of power generated at the diversion headworks, the water is pumped sixty-six feet in height thereby irrigating immense acreages of land, and the Shoshone project of Wyoming, where is to be found the highest and most wonderful masonry dam in the world.

NO. 2. THE SALT RIVER PROJECT.

Here we have before us a map of the Salt River Project located in and above Phoenix, Arizona. This is one of the world famous reclamation projects constructed by the United States Reclamation Service. The Roosevelt Dam, as seen in the next illustration, is world-beating in its proportions. This dam is 280 ft. high, contains 3,470,000 yards of earth, 332,300 yards of masonry, and cost \$3,470,000. Its remarkable features are that a lake having an area 16,320 acres is formed by its impounded waters, thereby storing 1,284,000 acre feet of water, constituting the third largest storing reservoir in the world. The total acreage irrigated from this supply is 240,000 acres and the entire project has cost the Government to date some \$9,000,000.

NO. 3. COLORADO-YUMA PROJECT.

In this project which is situated some ten miles north of Yuma, Arizona, upon the Colorado River, we find a unique world-beating accomplishment. Here as dam but 19 feet high and yet 4,780 ft. long has been constructed. As shown in the illustration the dam is of the weir type and similar to that followed in many notable constructions in India. The water is taken by means of two canals, one on each side of the river. A notable feat is that the siphon which is shown in the next view, passing under the Colorado River. This siphon consists of a tunnel with a 14 ft. bore. This project is illustrative of that type which will ultimately prove so beneficial to the great Sacramento and San Joaquin Valleys. Here we have levees 73 1-2 miles long completely protecting the bottom lands and in the bottom lands are located pumping systems which relieve the lower lying lands of excessive waters found there.

NO. 4. MINIDOKA PROJECT.

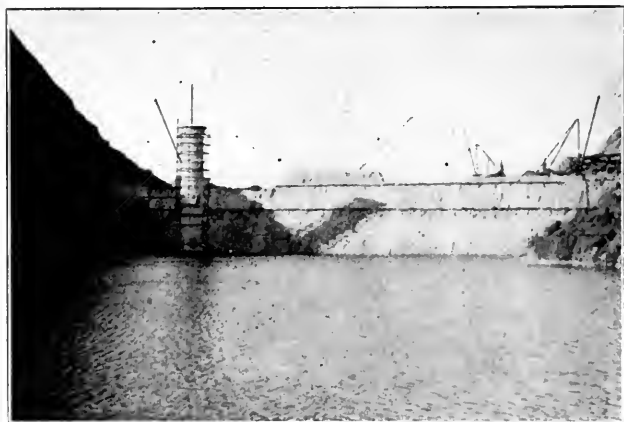
Here we have the greatest irrigation pumping project in the world. This undertaking is located on the Snake River in Idaho. 81,000 acres are irrigated under a gravity system while 50,000 acres are irrigated under a pumping system, the average lift being the remarkable height of 66 ft.

PROJECT 5. SHO SHONE DAM.

Northern Wyoming on the western rim of the Yellowstone National Park, has at present the honor and distinction of having in its confines the highest dam in the world. Here a lake of 10 square miles has been impounded with an average depth of 100 feet. The dam, however, constitutes a towering wedge of 328.4 feet from its base to its top. As shown in the illustration, New York's famous Flat Iron Building lacks 47 feet of peering over its top. The tip-top of the dome of the United States Capital at Washington even falls 21 feet short of its parapet. Down stream from this dam, a tunnel has been driven through solid rock 3 1-2 miles in length, through which the waters are conveyed and thence empty into a canal 40 miles long, supplying water to a fertile and prosperous valley of 150,000 acres. The project was completed in the winter of 1909-10.

Those having in charge the supplying of the enterprising City of San Diego with water have seen fit to develop their water resources in such proportions as to break the world's record for rock-fill dam construction.

The next view shows a picture of the Morena rockfill dam at San Diego which comprises the highest dam in the world constructed in the manner as shown



MORENA DAM—Highest Rockfill Dam in the World

in profile. It is evident from the slopes which are given on the front and on the rear that the factor of safety in this structure is well proportioned.

Possible one of the most successful mass shots with blasting powder ever accomplished took place on this work Oct. 30, 1909, when only 13,522 pounds of powder in a chamber at the end of a tunnel draft 150 feet long broke 180,000 tons of granite rock at a cost of only 4 1-2 cents per ton. Let us compare now for a moment this dam with the Roosevelt Dam already mentioned. This latter structure, it will be recalled, is 280 feet wide, 170 feet thick at river bed and 16 feet thick at the top and over 1080 feet long at the crest. It required four years to build, has 340,000 feet of masonry in its contents and cost the Reclamation Service of the United States Government \$3,468,000. The Morena Dam, on the other hand, is 267 feet high from the bottom of the foundations, which were excavated 116 feet below the old stream bed, to the top. It is 300 feet thick at the base, 550 feet along the crest, required five years in building, has 306,000 cubic yards of

masonry and cost \$1,500,000 to complete. It is needless to add that the skill and good workmanship employed will make it last through eternity. The engineer constructing this world-beating enterprise is no less than Mr. M. M. O'Shaughnessy, the newly appointed city engineer of San Francisco.

PROJECT NO. 7. THE LOS ANGELES AQUEDUCT.

After scouring the hills and dells of Southern California for successive seasons, the engineers of that enterprising community finally decided upon the plan of bringing waters the ambitious distance of 240 miles in order to supply this great municipality with adequate quantities. Here we have a map of the general project. The primary purpose of the conduits and reservoirs known as the Los Angeles Aqueduct is to deliver the largest possible amount of the available water supply of the Owens River watershed to the head of the San Fernando Valley where this supply will be distributed for irrigation and domestic purposes.

By a series of the most patient and painstaking collecting of data, it is found that a continuous flow of 400 second feet of water, or 20,000 miner's inches, may be counted upon at all seasons of the year, from this source. This is equivalent to almost 260,000,000 gallons per day. At the rate of 100 gallons per capita of population, this will accommodate 2,600,000 people. In order to safeguard, however, any possible shortage hitherto unforeseen, artesian wells as illustrated in the next views have been developed and the lands upon which they are located have been purchased by the proper authorities for the municipality of Los Angeles. If a conduit should be constructed to carry the maximum flow of the Owens River on July, 1906, this conduit would require a carrying capacity of 2182 second feet. A conduit of such gigantic proportions is seen at a glance to be wholly impracticable. Hence, if reservoir sites had not been placed by Nature in her foresight in convenient places, the project known as the Los Angeles Aqueduct would today be an impossibility.

Let us examine for the moment the elasticity of the reservoirs which go to make up the complete aqueduct proposition. Two reservoir sites situated above the intake of the Los Angeles Aqueduct, known as the Long Valley projects, one calling for a dam of 140 feet in height and a capacity of 260,000 acre feet and another a dam of 150 feet in height, with a capacity of 305,000 acre feet, are believed of sufficient size to store the supply of water when needs demand every gallon of possible water storage.

Referring now to the map, the water enters the canal about twelve miles north of the Independence. At this point the canal has a carrying capacity of 800 second feet and gradually increases to accommodate incoming streams to 900 second feet. These waters are conveyed into the Haiwee Meadows. The dam here constructed in completed project is 80 feet high and stores 63,800 acre feet, or a sufficient quantity to supply the remaining length of the canal 430 second feet of water for 2 1-2 months or it can store water for 2 months and 7 days while receiving it at the rate of 900 second feet and emptying it at the rate of 430 second feet. Thus is shown the pliability and elasticity in taking care of flood waters. Next the water is conveyed from this reservoir through canals, tunnels and syphons to the Fairmont Reservoir which is located in the foothills on the

south side of Antelope Valley. Here is found a reservoir site capable, by means of a 105 foot dam, to impound 7,620 acre feet of water, not extra large but sufficient to perform the function of regulating the flow through the power conduit to meet hourly variations in power generation. Thus this reservoir alone may supply 430 second feet of water for nine days. A conduit to convey 1000 sec. ft. is, however, to be constructed eventually from the outh end of the Elizabeth Tunnel into a series of short tunnels and steel pipe lines, eight miles in distance, to the first power house in San Francesquito Canyon. The tunnel pressure will be an 800 ft. head of water, 44 ft. of which will be lost in friction when carrying a maximum flow of 100 second feet. Hence a peak load of 77,000 horse power may be generated at the first power house and a second drop of 578 feet further down the canal will give a maximum of 52,500 horse power or an average of 22,600 H. P. From the tailrace of this second power house the waters are conveyed into the Dry Canyon Reservoir which has a capacity of 1325 acre feet with a dam 55 feet high. This water regulates the back to normal flow the fluctuating discharges through the power houses which will vary from 80 second feet to 1000 second feet, depending upon the calls for power in the busy city 30 miles away. From this regulating reservoir the waters will then be stored in the San Fernando Reservoirs, No. 1, 120 ft. high, storing 15,900 acre ft. and No. 2, 124 ft. high, storing 21,050 acre ft. This combined capacity will store more than 4 months' supply for a population of 1,000,000 with a per capita consumption of 100 gallons per day.

The cost of work to Dec. 1, 1911, and estimates of completed work, made at that date, are as follows:

	<i>Cost to Date</i>	<i>Approx. Total Cost</i>	<i>Per Cent of Completed Work</i>
Tunnels	\$ 5,418,009	\$ 5,915,000	91.5
Conduits & auxil.	5,128,122	7,000,000	73
Canal	190,142	195,000	97.6
Siphons	478,706	1,965,000	34.4
Flumes	38,588	40,000	100
Reservoirs	318,467	510,000	62.3
Lands	1,696,590	1,725,000	98.2
Incidentals	6,453,433	6,650,000	97.2
Totals	\$19,717,057	\$24,000,000	82.3%
	Original estimate - - -	\$24,500,000	
	Extras on conduit coverings -	1,000,000	
	Probable salvage will be -	1,000,000	

POWER POSSIBILITIES

- 1,152,000 K.W. hrs. per day.
- Uniform delivery of 48,000 K.W. or 64,000 h.p. to max. del. of 90,000 K.W. or 120,000 h. p. on avg. curve of 53 = L. A. according to chart.
- On max. installed cap. estimate is \$80.00 per k. w. or \$60.00 per h. p.

NO. 8. THE HETCH HETCHY WATER SUPPLY.

For the past ten years, the engineering force of the City of San Francisco has been scouring the state for possible means of future water supply. A dozen different projects have been examined and the one which has seemed the most feasible is that of the Hetch Hetchy development. The principal reasons for this adoption being that of lower cost, more abundant supply and purer quality of water than any other obtainable. In May, 1908, the permit was obtained to use

Lake Eleanor, situated near the Hetch Hetchy Valley, as a site for a storage reservoir with further permission to use the Hetch Hetchy Valley when the limit of storage of Lake Eleanor had been reached. This latter permit was later called in question by the Department of the Interior as two objections had been raised to its granting. The one was, that prior rights to the waters were being jeopardized and the other that the natural beauty of a great scenic national park would be destroyed.

The first proposition, to bring these waters to San Francisco, outlined by C. E. Grunsky, engineer of the City of San Francisco, was to bring the water from Lake Eleanor and the Hetch Hetchy down across the San Joaquin Valley to Altamont. At this point he proposed to pump these waters over the Coast Range into San Francisco. The power for this pumping was to be gotten from power generated in the drop of the water from the Sierra Nevada side of the valley. During the last season, however, Mr. John R. Freeman, the noted water expert, has been called into consultation by the authorities in San Francisco, to outline a comprehensive plan of development. Mr. Freeman's report is by far the most daring and all comprehensive of municipal projects ever proposed. He has carefully estimated that by the year 2000, the population in the cities around the Bay, including San Francisco, Oakland, Berkeley, Richmond, Alameda, San Jose, Palo Alto, Redwood City and San Mateo, will total 3,632,000 and will require a daily water supply of 441,000,000 gallons. In addition it is proposed to obtain a supply of about 100,000,000 gallons a day for irrigating 95,000 acres. The general features of Mr. Freeman's scheme are as follows:

A dam 300 ft. high is to be erected at the dam site of Hetch Hetchy by which the floor of the valley will be flooded to a depth of 270 ft.; a wagon road is to be built to Hetch Hetchy Valley equal in point of construction to the state highways with no grade exceeding 8 ft.; a scenic road is to be constructed at Hetch Hetchy Valley on both sides of the lake—this as shown in the illustration will make available the wonderful attractions of a region now inaccessible. And finally the Hetch Hetchy Aqueduct is to be built from this valley to San Francisco. This aqueduct will consist largely of a tunnel 10 ft. in diameter, for the most part deeply below the surface of the ground. This tunnel extends to the easterly edge of the San Joaquin Valley. Thence continuing westward across the valley, the suggested aqueduct will consist of one steel pipe 7 ft. 6 in. in diameter and ultimately of two steel pipes side by side of similar proportions, about 45 miles in length. On the westerly side of the San Joaquin Valley, the steel portion is to end about 8 miles westerly from the San Joaquin River. From this point the aqueduct proceeds westerly for the most part in the form of tunnels about 12 or 13 ft. in diameter to a point near the village of Irvington at which point the terminal chamber and gate house will be built and branch aqueducts lead off as desired to Oakland, San Jose, San Francisco and other communities. From this point the aqueduct would proceed in the form of a steel pipe submerged across the Dumbarton Narrows near the head of the Bay, or it could be carried on dry ground around its head to a suitable point in San Mateo County. Whence it could discharge by gravity at an elevation of 320 ft. through a new tunnel into Crystal Springs Reservoir, or could feed branch lines leading to neighboring com-

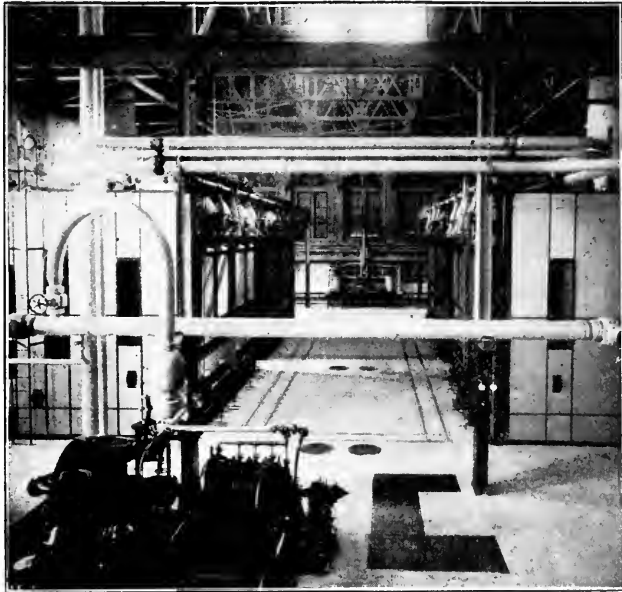
munities and to a main aqueduct line leading directly to San Francisco. The proposed aqueduct between Hetch Hetchy and the Irvington Gatehouse would be designed to deliver by force of gravity without pumping a quantity somewhat in excess of 400,000,000 gallons daily, equivalent to 620 ft. per second. All the tunnels will from the first be built to their full size and smoothly lined with concrete. During the early year with only the single pipeline across the San Joaquin Valley, the delivery of the aqueduct would be in excess of 200,000,000 gallons daily, possibly 240,000,000. The branch line to supply the San Francisco Peninsula will have a capacity of about 100,000,000. It is proposed to utilize the water until the population requires it for domestic use in the reclamation of arid land in and about the Bay region.

That portion of the tunnel, as shown in the illustration, which is about 12 miles in length and lays down stream from Hetch Hetchy, is to be delayed in construction for some years. Eventually, however, the construction of this tunnel will afford the development of 75,000 H. P. At the point on the illustration marked "Power House No. 1" is seen a drop of 1425 feet into Moccasin Creek where 70,500 H. P. is developed. In addition to this it is proposed to construct a canal 8 ft. in diameter from the Hetch Hetchy Reservoir to the reservoir site in Cherry Valley, passing beneath the Yake Eleanor reservoir site with intake shafts at Cherry Creek and Lake Eleanor for the purpose of diverting their waters into the Hetch Hetchy reservoir. Only temporary dams are to be constructed at these two latter points, reserving for future demands a more permanent and substantial form of construction. The drop as shown on the profile of this tunnel work allows an additional development of power to the extent of 12,500 H. P. Hence in all there is a total possible power development of 157,500. The entire project as proposed for immediate construction is estimated to cost \$38,500,000. Mr. Freeman makes note of the fact that standing water tends to purify and hence the purest supply of water is to be expected from this high Sierra construction. Indeed, he has stated in public before the Commonwealth Club of San Francisco, that in comparing the softness of this supply to the softness of supply that might be developed from the Sacramento Rivers, the saving in soap alone to the community about the Bay would eventually pay the interest on a \$3,000,000 investment. To insure sanitary perfection and non-corrosion of the steel material in the pipe line, the pipe conduit is to be lined with concrete throughout its entire length.

NO. 9. THE HIGH PRESSURE SALT WATER SYSTEM OF SAN FRANCISCO.

The catastrophe of 1906 in which the business section of San Francisco was swept from the face of the earth, largely due to the fact that water could not be obtained to fight the fire, led serious men to consider ways and means of insuring against the possible recurrence of this event. A reservoir has been constructed upon Twin Peaks which when completed will supply fresh water discharge at 700 feet pressure to any portion of the city as shown in the outline map. In case this reservoir should be emptied, an auxiliary high pressure system has been installed to meet the emergency by pumping salt water from San Francisco Bay into the city mains. These mains constitute a net-work of cross connection

throughout the city and it is believed next to impossible that all of the various channels could ever be shattered at once. On the corner of Second and Townsend Streets of San Francisco, there has just been completed, at an expenditure of \$500,000, the first high pressure power plant. The building is constructed on solid rock. A channel has been cut to the waters of the Bay through this rock so that the salt water supply is immediately below the pumps and the power house. The steel frame working of the building is one of the heaviest which has been constructed in San Francisco and contains 500 tons of steel. It is believed that should a catastrophe ever again visit this city that a building the size of the Call Building could fall against its roof without harming the pump within. No expense has been spared to make this building absolutely fireproof. All of the windows are wired glass in metal frames and in addition, rolling steel shutters are provided at all of the openings. Should a catastrophe ever again visit the city,



SAN FRANCISCO HIGH PRESSURE PUMP

these shutters would be closed and by calling upon the water and oil stored beneath the building a three days' operation may be steadily maintained without access to the world without. The boilers themselves are models in construction and have met every guarantee imposed upon them. The guarantees specify that the boilers shall within thirty minutes be able to supply steam at full capacity. The stand by loss is of interest in maintaining an emergency station of this type to be ready at all times. Full boiler pressure of 200 pounds per square inch is kept in one of the boiler at all times and yet in order to accomplish this result only 5 per cent of the fuel necessary to operate the boiler at its rated capacity is necessary. Four pumping sets or units are installed in this station, each pump having a capacity of 2700 gallons per minute, delivering water at a pressure of 300 lbs. per square inch. The interior appearance of the power house is of neat and substantial design. In fact, it is doubtful if any power house on the Coast presents

the trim and finish observed here, even down to its tiled flooring. Minutes care in design and constructive detail is shown on every hand. Mr. Tom Ransom, Mechanical Engineer Expert for the Mechanical Engineer Department of San Francisco, is the engineer responsible for this design and Mr. C. R. Weymouth, of



SNOQUALMIE FALLS

Charles C. Moore & Company, is likewise to be congratulated upon the excellent workmanship and material furnished.

NO. 10. SNOQUALMIE FALLS.

The great cities in the Northwest may equally well boast their prowess with those of California. A recently organized corporation known as the Puget Sound

Light & Power Company, a Stone & Webster Subsidiary, has two remarkable world-beating features. The one is the Snoqualmie Falls plant and the other their White River plant. Snoqualmie Falls as seen in the illustration has a total vertical height of 270 ft. Here two power plants have been constructed to utilize the latent force of the stream of the river. To show the audacity of Western engineers in their constructive methods, the power house known as No. 1 is chiselled out of solid rock in order to protect the machinery from the spray due to the Falls. A tunnel 12 ft. in diameter and 1,035 ft. long passes 1,340 second feet of water from Power House No. 1 to Power House No. 2.

NO. 11. THE WHITE RIVER POWER PLANT.

Passing now to the White River plant, a second installation of the Puget Sound Light & Power Co., we find here the largest turbines in the world. These turbines have a capacity of 18,000 brake horse power operating under a head of 440 ft. As shown by the illustration, the turbines are of the inward flow type, the



HIGH WATER, KERN RIVER

water entering through the spiral casing from below and upon entering the runner it divides into two discharges with separate quarter turns. The tremendous power developed by these units, coupled with their unique method of governing and control, constitute indeed an achievement of which the West may well be proud.

NO. 12. THE BIG CREEK PLANT OF THE PACIFIC LIGHT & POWER COMPANY.

Some 60 miles east of Fresno there is now under actual construction, another unique and world-beating triumph of hydro-electric development. This undertaking is known as the Big Creek project of the Pacific Light & Power Company, a corporation which supplies light and power to operate the beautiful system of interurban car lines in and out of Los Angeles.

In the illustration we find before us Kerchoff Dome, tumbling at the foot of which is seen the waters of Big Creek which drop some 4,000 feet in a brief course of 3 miles. To utilize this gigantic drop of water, two immense power plants are being built which will eventually generate 120,000 K. W. of electrical energy and transmit the same into Los Angeles, a distance of 275 miles. This transmission will take place by means of double steel tower, each circuit of which contains three steel cord aluminum cables of 61 strands. These cables will be

about one inch in diameter and the electrical energy will be transmitted at or above 150,000 volts, thus once again eclipsing all previous high voltage marks in the history of engineering transmission.

PROJECT 13. BIG MEADOWS DAM OF THE GREAT WESTERN POWER COMPANY

Here we see before us the undertaking of a project surpassed in capacity of water stored by only one other similar undertaking in the world,—that of the Assouan Dam in Egypt.

The Big Meadows Dam of the Great Western Power Company, by means of a dam 150 ft. high over all, thereby raising the water 110 ft. will flood an area of 40 square miles and store 1,325,000 acre feet of water. So great are these proportions, the human brain can conceive of no adequate comparison. Suffice it to say that the lake to be formed would submerge almost the entire area represented by the City of San Francisco were this metropolis placed within its waters. As to the quantity of water stored, let us for a moment analyze. 1,325,000 acre feet of water is equivalent to 54,450,000,000 cubic feet. Some one has aptly said "A camel can go seven days without drinking, but the human being partakes three times a day without thinking." Experts have estimated that the average



LOW WATER, KERN RIVER

man uses for drinking purposes alone something like one quart of water per day. Mind you, this is entirely separate from the total amount of water used in the domestic supply of modern cities which varies from 40 to 100 gallons per capita per day. Assuming that one man drinks one quart of water per day, if the entire population of San Francisco, Oakland, Berkeley, Richmond, Alameda and other Bay cities, comprising in all a population of, let us say 725,000 people, had started in at the beginning of creation as recorded in biblical pages, that of 4004 B. C., to drink this lake dry, they would in the year 1915, in time to celebrate for the Panama-Pacific International Exposition have just completed the task. This dam is also remarkable as being the future means of an additional development of 500,000 electrical horse power to supply the great needs of growing California. By means of its multiple-arch construction only 30,000 cubic yards of masonry are to be employed in its erection. A portion of this power is at the present time being transmitted into San Francisco at the world-beating voltage of 110,000.

NO. 14—PACIFIC GAS & ELECTRIC NET WORK.

Here is a system of high voltage transmission lines 2500 miles in length, over and above the greatest of all similar systems in the world. From one extreme distance of one power plant to the other extreme generation station, pulsating energy is generated synchronously 400 miles apart. The lights that operate the buildings this evening receive their pulsating energy from this gigantic network. Indeed this network supplies electricity to over a million people and gas to almost a million, thereby serving two-thirds of California's population. Thirty of the fifty-six counties in the State comprising an area of 32,431 square miles are served by this labyrinth of wires. This area is three-fifths the size of New York and one-half the size of all the New England States combined. The corporation employs some 5,000 men, operates eleven hydro-electric plants in the mountains, four steam driven electric plants in the cities, and seventeen gas works. Once again we stand aghast and bow our heads in awe and admiration of Western achievement.

PROJECT 15—THE SPAULDING DAM.

Here we have before us a project which when completed will be the greatest of its kind in the world, even vying with the Shoshone Dam in the dizzy heights reached by the top of its parapet. This dam will actually raise water to a greater height than any hitherto constructed in the history of engineering. Here we see the well known Call Building, the highest structure in the new San Francisco outstripped in its towering propensities. Indeed the Call Building could be entirely submerged eight feet if placed upon the bottom of the dam site as shown. Only the flag pole alone remaining to tell of its former gigantic proportions.

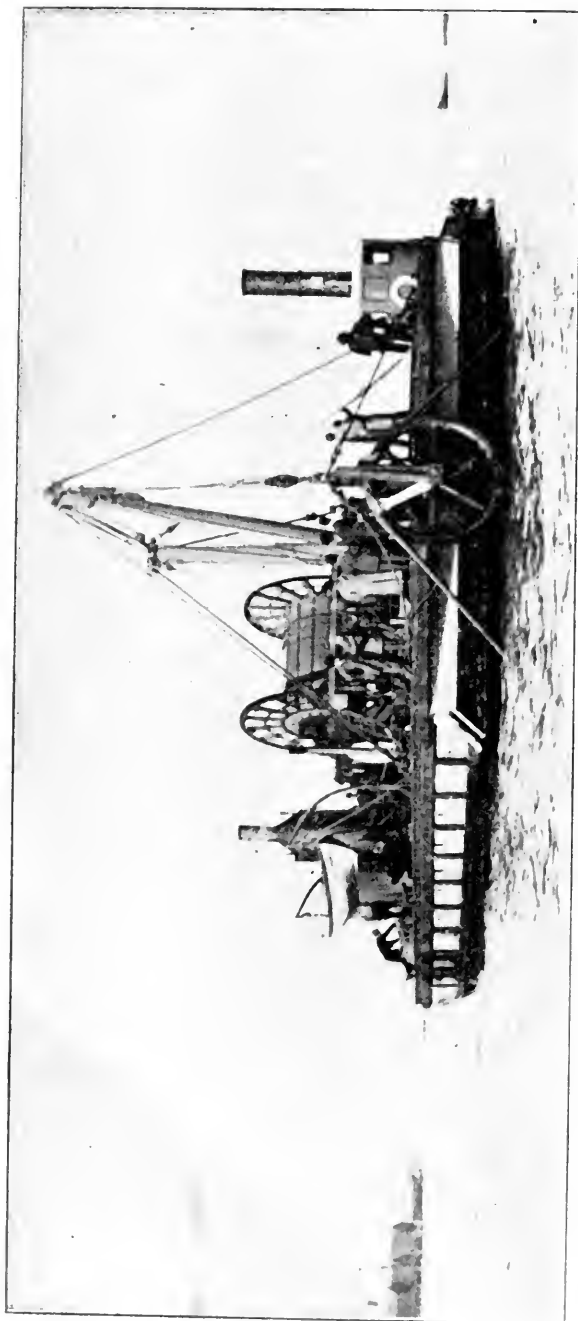
But in contemplating this great world-beating feat a tinge of sadness has come over all during the past fortnight. My dear, dear classmate, James H. Wise, who had entire charge of this work has passed the Great Divide.

A LIFE WORK.

Many are born to live but few to lead. In the passing of James S Wise, Assistant General Manager of the Pacific Gas and Electric Co., the West has lost a born leader. Yet, it is not for leadership alone that his loss is so keenly felt. It has been truly said that "all the world loves a lover." The enthusiasm and love shown for his work was reflected in the lives of all who knew him.

NO. 16. THE CROSSING OF CARQUINEZ STRAITS.

In the struggle of competition between great power companies entering San Francisco, three world-beating feats have been brought to life. The Bay Counties Power Company, now a part of the Pacific Gas & Electric network, in its endeavors to transmit its hydro-electric power generated in the high Sierras of California encountered the waters of the great San Joaquin and Sacramento rivers. Being navigable streams, the feasible and only manner in which to get water across them without submarine cables was by a span of four separate wires. This span is 4,420 ft. long and passes over Carquinez Straits near Benecia at a height of 206 ft. at the lowest point. This again constitutes a world-beating



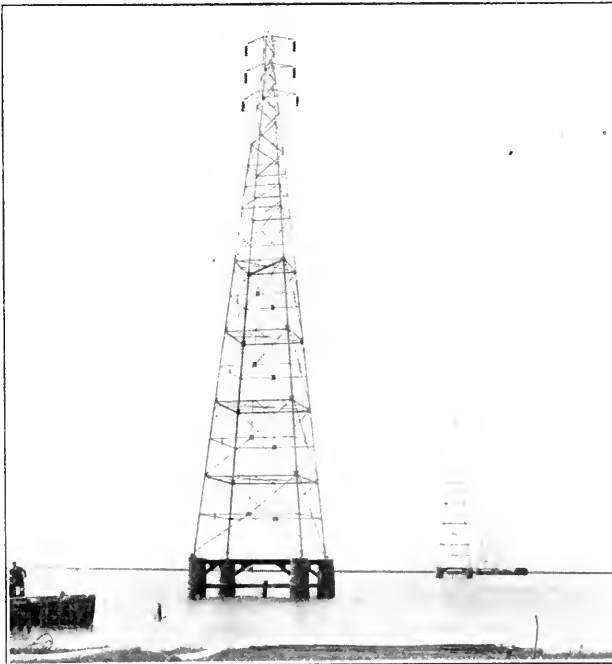
LAYING CABLES UNDER SAN FRANCISCO BAY

feat. An interesting incident pertaining to this accomplishment came about some years ago when it was thought best to paint the several wires seen in the illustration. A trolley device was lowered on the fourth wire and a daring attendant at one of the towers, shown in the illustration, volunteered to take the aerial journey over the waters below. Needless to say the feat was performed which afforded much interesting speculation to the inhabitants of the rural community for miles around.

The methods of insulation due to the high voltages and the excessive high strains brought out much technical ingenuity, a discussion of which cannot, however, be undertaken this evening.

NO. 17. THE SUBMARINE CROSSING OF THE GREAT WESTERN POWER CO.

The feat of spanning the Straits of Carquinez by electric conduits mentioned



SIERRA & SAN FRANCISCO POWER CO.'S
ENTRANCE INTO SAN FRANCISCO

above has been equalled more recently by the crossing of San Francisco Bay by a submarine, 12,000 volt, 3-phase cable, 18,000 ft. in length. This was placed in service by the Great Western Power Company during the present year.

PROJECT 18. SIERRA AND SAN FRANCISCO POWER

COMPANY ENTRANCE INTO SAN FRANCISCO.

The Sierra and San Francisco Company, the output of whose power is largely consumed in operating the United Railways of San Francisco, has also accomplished a world-beating feat in its method of solution of crossing the San Francisco Bay. Here, overhead tower construction was adopted which has

proved unique and serviceable. These steel towers, as shown in the illustration had to be anchored upon concrete piers and were hoisted into place by means of donkey engines placed upon barges floated into position for that purpose. These towers were maintained throughout of standard and uniform construction thus in case of accident a replacement is easily made. The continuity of service for this transmission system is remarkable and today so far has existing data can be obtained, a record for minimum shut-downs having a minimum length of duration has been accomplished.

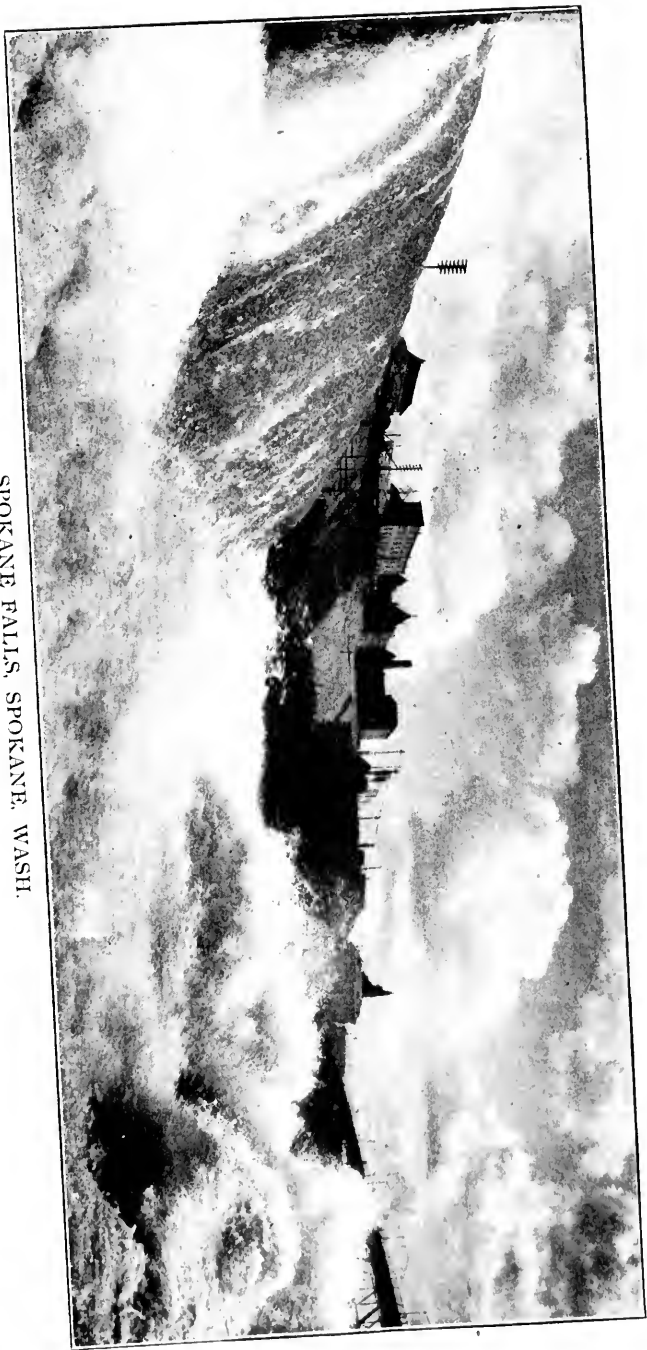
NO. 19. STEAM GENERATION.

The varying supply of water in the high mountains and the excessive calls for power in certain hours during the day have necessitated the establishment in great distribution centers power stations consisting of auxiliary steam plants. The rapid rise of the steam turbine has displaced all other forms of steam generation. The Pacific Gas & Electric Company at Station A in San Francisco has installed a 15,000 K. W. steam turbine, one of the largest units of its kind in the world. Here we see in the illustration, in dotted outline a 1,500 K W. vertical steam engine which has been displaced by this 15,000 steam turbine, showing in an impressive manner the small concentrated space occupied by this steel incased monster. Such statements as 15,000 K. W. conveys a small conception of the concentrated power involved. Perhaps we can get a better impression of the prodigious electric supply which is capable of being generated by this monster when we say that a string of horses six abreast and seven miles long, working to their utmost could but equal the energy of this single modest, unpretentious, cylinder-shaped mechanism. Indeed could we neglect for a minute the question of line drop in the wires, this one unit would be capable of lighting a string of 16 candle power lamps placed 220 ft. apart that would encircle the globe. So far as power is concerned our novelty managers of the Panama-Pacific Exposition could by means of this turbine generate sufficient energy to deliver a sight seer to the moon and back every three minutes. It is interesting to note that if an observer were placed upon one of the tiny buckets of the periphery of this present monster turbine he would pass through a distance of some five miles a minute and could he hang on for three and one-half days, he would out do Nellie Bly in her classic foreign visitations, for in this brief time he would travel a distance equal to a trip around the whole world.

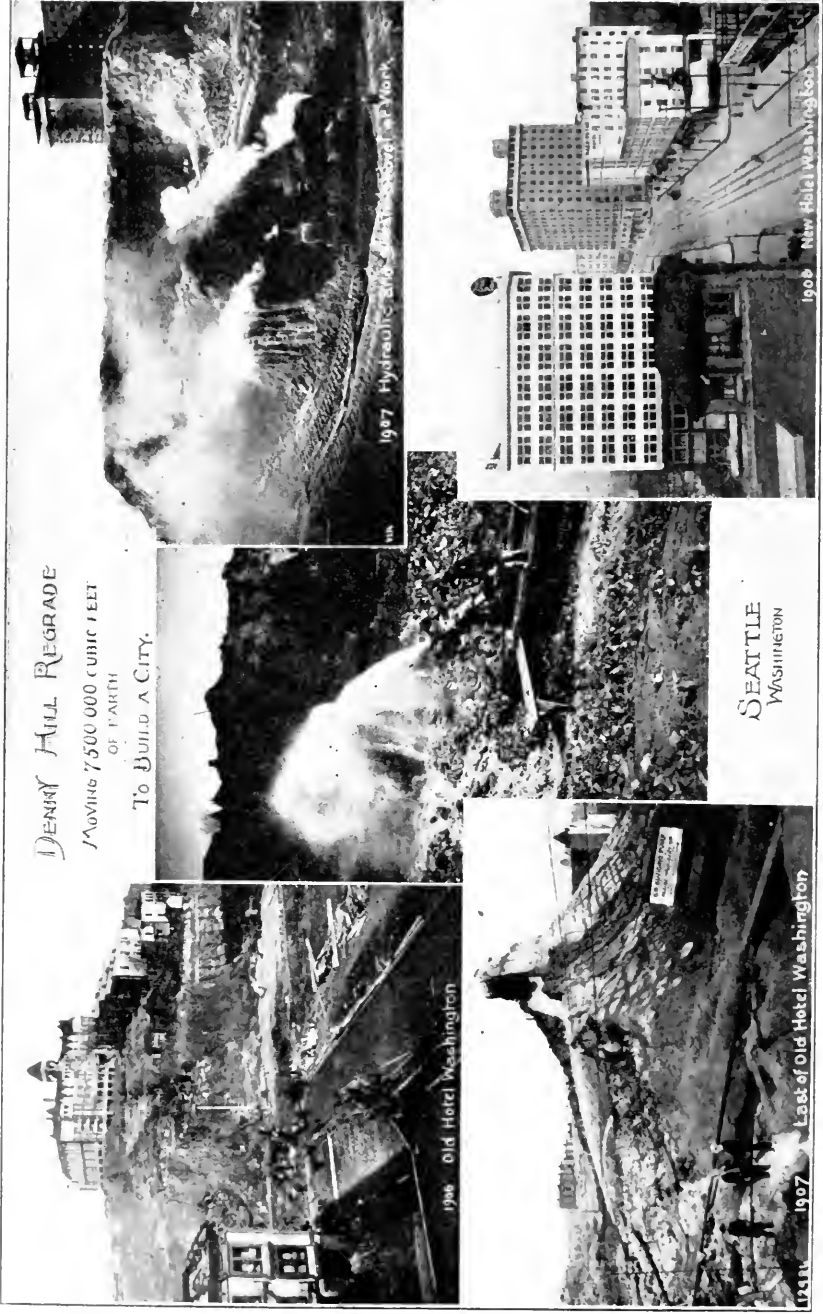
NO. 20. THE LEVELING OF THE STREETS OF SEATTLE.

One of the most unique and at the same time, one of the greatest in point of benefits derived by the municipality from the great engineering feats of the West, is that of the regrading operations in Seattle and Portland. This gigantic regrading process has been carried on by means of hydraulic giants, by means of which vast sections of these cities have been washed to lower levels and regraded into modern business districts.

The method by which these projects were financed is of interest. Let us then briefly review how the local improvement district method adopted in Seattle in 1902, has so efficiently performed its functions.



SPOKANE FALLS, SPOKANE, WASH.



DENNEY HILL REGRADE
MOVING 7500 000 CUBIC FEET
OF EARTH
TO BUILD A CITY.

1907 Hydraulic and Gravel Pit at West

1906 Old Hotel Washington

SEATTLE
WASHINGTON

1907 East of Old Hotel Washington

1908 New Hotel Washington

LEVELING OF THE STREETS OF SEATTLE

1. Seventy-five percent of the interested owners must sign a petition favoring the scheme.
2. The petition is sent to the City Council.
3. The City Engineer lays out the district making plans, grades and estimates.
4. A board of Eminent Domain determines the assessment and damages for each lot.
5. Bonds are issued by the City to pay the cost of improvements, these bonds bearing six or seven per cent and run from five to ten years. The owners on the other hand pay either to the city treasurer at once, thereby discounting the interest charges or a proportion is paid each year in installments until the entire amount is paid.
6. The contract is then let for the work. In the case of the Seattle work Lewis-Wiley Company under took the entire work. Their work having proved so successful in Seattle, they now are engaged in similar work in Portland.

In Seattle eleven and one-half miles of improved streets have been accom-



THE ORIGINAL SAN ANTONIO POWER PLANT

plished; 18,000,000 cubic yards of material have been removed at a total cost of \$3,500,000.

THE REBUILDING OF SAN FRANCISCO.

The great disaster of 1906 has resulted in making possible still another world-beating accomplishment, that of the rebuilding of a great modern metropolis at the hands of a brave people. Here we see before us a portion of San Francisco indicative of the manner in which every human vestige was swept by the devouring element in April 1906. The buildings destroyed by the fire numbered 28,188 and were valued at \$105,000,000. It is indeed interesting to note that the total amount expended for new buildings to private construction during the last six years totals \$227,467,328, which more than doubles the amount lost.

Here we next see the new San Francisco with its buildings of concrete and steel forming a silhouette against the sky—a fitting monument with which to welcome the nations of the world in the year of years, 1915.

PROJECT NO. 22. THE PANAMA CANAL.

Here we see in outline the greatest engineering achievement of the ages, which in 1915 will unite the Atlantic and Pacific as one. About this great project much has been written. Suffice it to say that the following is what everyone should know:

CANAL STATISTICS.

From Atlantic to Pacific is practically West to East.
 Length of canal 50 1-2 miles.
 Culebra Cut Depth 300 feet.
 Locks in Pairs, 12.
 Locks Usable, length 1,000 feet.
 Locks Usable, width 110 feet.
 Excavation, Estimated Total 174,666,596 cubic yards.
 Excavation, By French Useful 29,908,000 cubic yards.
 Concrete, Total Estimate 5,000,000 cubic yards.
 Time of Transit through Canal 10 to 12 hours.
 Time of Passage through Locks 3 hours.
 Canal Force Actually at Work 39,000.
 Canal Company formed by The French 1879.
 Canal Work Begun 1881.
 Eight Years' Work, Cost \$300,000,000.
 Work Begun by United States May 4, 1904.
 United States Paid French Canal Company \$40,000,000.
 United States Paid Republic of Panama \$10,000,000.
 Cost of Canal Total Over \$375,000,000.
 Date of Completion January 1, 1915.
 Shortening of Route, New York to San Francisco 8,415 miles.
 A Yearly Saving of Millions to the Shipping World.

PROJECT NO. 23. THE PANAMA-PACIFIC EXPOSITION.

And now, my friends, you see before you in this the last illustration I have to exhibit to you this evening, the culmination of Western achievement familiar to you all—the bird's eye view of the great Panama-Pacific Exposition in San Francisco in 1915. In my brief panoramic display of Western engineering achievement this evening I have discussed twenty-four monuments of world-beating engineering accomplishment. These monuments have been erected by enterprise and enthusiasm fully in accord with the gigantic proportions of these Western triumphs. The era ahead of us during the next twenty years will see another world-beating feat—that of the commercial supremacy of the West. It behooves all, then, within my hearing this evening to be active and alive to the possibilities ahead. Indeed, in closing, I leave with you the same message that St. Paul sent to the Corinthians nineteen hundred years ago, which by interpretation reads, "Therefore let us not sleep as do others, but let us watch and be thoughtful."

SUGGESTIONS FOR AMENDING THE LAW FOR EXERCISING THE INITIATIVE, REFERENDUM AND RECALL

BY WM. J. LOCKE, EDITOR PACIFIC MUNICIPALITIES

Nearly every one will agree that the procedure for exercising the initiative, referendum and recall, as now provided in the general laws of the state and the various municipal charters, is sadly in need of amendment.

Direct legislation has undoubtedly come to stay, many people believing it to be in accord with the progressive spirit of the times. When the machinery for their operation has been repaired and properly regulated, it is more than likely that these "evil triplets" (so-called by one of the attorneys) will be recognized as a logical auxiliary to our system of popular government. How can we prate of government by the people and deny the right of direct legislation? Would it not appear most illogical to deny the people the right to do directly that which their representations may do for them? Would it not place us in the position of endowing the creature with power which we deny its creator? Unquestionably so. In other words we would be conceding the servant more authority than possessed by the master. For these reasons among others I believe there is a preponderance of evidence upholding the doctrine of direct legislation and there is no question but what the initiative, referendum and recall may be considered as permanent fixtures of our system of government. They should not be looked upon, however, as an auxiliary branch designed to be used on the slightest provocation, but solely as protective measures only to be resorted to when other means have failed. It will be universally conceded, however, that any procedure devised for making use of direct legislation should be of

such a nature as to prevent misuse or abuse. Its provisions should not be such as will enable disgruntled politicians to use it as a club on the administration in power. Any plan which enables ten or fifteen per cent of the voters to call an election at will is defective, and any plan is defective which requires an officer who has been chosen by a majority of the voters to submit to re-election because ten or fifteen per cent of the voters petition for his recall.

In the present method for procedure in exercising direct legislation there are several features crying aloud for correction. One of these is the method of petition, and I feel safe in saying that the practice of sending solicitors around to secure signatures to petitions is undoubtedly the worst feature of the whole scheme. Invariably the solicitors are only interested from selfish motives, generally receiving so much per name as a compensation for their services. They seldom know much if anything about the issue involved, and care less. Neither do they have the least hesitation in resorting to misrepresentation if necessary to secure a signature. As proof of this I know it to be a fact that quite recently many voters were asked to sign petitions for a law to "encourage the breeding of fine horses," when as a matter of fact the real object was to re-open the race track.

On the other hand the person who is solicited to sign seldom has the time or inclination to read the petition. In many cases the solicitor is looked upon as a bore and voters will sign to get rid of him. Others again will attach their signatures out of sympathy for the solicitor.

tor, that he may receive the ten cents paid for each name. Thus it remains that a very small proportion of the names on a petition are signed in the spirit of good faith and sincerity intended by the law. This unfortunately is practically true of every kind of petition, including those for the nomination of candidates. Therefore we find that the first and most important thing to be done in devising a remedy for our present system of exercising direct legislation and the recall is to remedy the method of petition.

Why send the petitions around at all? The ballot box is not sent around on election day; voters are obliged to go to the polls. Therefore, instead of bringing the petitions to the signers why not require the signers to go to the petition? In other words, why not abolish all soliciting and instead, deposit copies of the petition at a number of public places to receive signatures. The adoption of such a plan could not offer any valid objections and would undoubtedly result in a wonderful change. The man who formerly signed petitions to accommodate a friend, or get rid of a bore or enable the solicitor to earn ten cents, would no longer have to be reckoned with, for the only persons who would take the trouble to sign a petition under these circumstances would be those citizens who were prompted by their earnest convictions and actuated by a deep sense of civic duty. Surely no one will deny but what this is as it should be. Of course, it would be a more difficult matter to obtain the necessary signatures, but what of that? It would not prevent the application of direct legislation or use of the recall in any worthy case where the circumstances warranted.

Besides requiring the petition to be deposited in a public place, it seems to me that another improvement to the

present method of exercising direct legislation would be a provision requiring counter petitions for securing the signatures of those who may be opposed to a proposition. For instance, if a number of citizens gave notice of intention to submit petitions for initiating an ordinance or recalling an official, provision should be made for the submission of counter petitions to be placed side by side with the others; or what would be still better the affirmative and negative petitions could be printed on one sheet of paper in parallel columns. Thereupon notice of the time and place for signing petitions, together with the arguments pro and con should be published for a reasonable time in one or more newspapers and the voters informed that signatures would be received on each petition for a period of, say for instance, thirty days. At the expiration of that time mentioned if it were found that the signatures attached to the petition of the proponents were equal to the required percentage and exceeded in number the signatures on the opposing petitions, then the matter should be submitted to an election. If, on the other hand, the necessary percentage of signatures was not received or if an equal or greater number of citizens petitioned against the proposed ordinance or in favor of retaining the official sought to be recalled, then no election would be held.

Such a proposition is not only fair, but removes the element of injustice in the present method which calls an election on a one-sided petition; in almost every case it is an easy matter to find ten or fifteen per cent of the voters who will sign a recall petition, but it would probably be quite as easy to secure as many or more citizens who would sign petition to retain him. Yet, under our present system, if a small percentage of voters petition for the recall of an of-

ficer, a special election must be held notwithstanding the fact that a much larger percentage might favor his retention. Therefore why not give the official and his friends the same right of petition his opponents now enjoy? And why should a city be plunged into the turmoil and expense of a special election on a petition of 10 or 10 per cent of the voters when perhaps 25 per cent or more are opposed to it? The plan suggested means simply that the proponents of a recall, or of any direct legislation, would have to get more signatures within a given time than their opponents or there would be no election.

Another advantage of the plan here suggested lies in the fact that it would remove in a large degree one of the greatest objections to the present system of exercising the recall, to-wit, the warring of contesting candidates before the recall itself has been decided. It is the general consensus of opinion that the question of recalling an official should be absolutely divorced from the question of considering candidates for the office. It has been found that unless this separation be made other issues are introduced and the merits of the recall proposition entirely lost sight of. The issue develops into an ordinary political campaign in which the official involved is compelled to defend himself and fight for his office all over again; all of which must be done on the people's time and at the people's expense.

The plan offered as an amendment would remove this objection to a large extent as the only question involved while the petitions were being submitted for signatures would be the question as to whether the official should or should not be recalled. The matter of nominating candidates and electing a successor would not be taken up until the petitions had been disposed of and then per-

haps not at all, as in case the petitions of the proponents did not prevail.

Now, as to the referendum but little need be said. So far as this feature of direct legislation is concerned it seems to be me that a provision similar to that incorporated in the San Francisco charter would be amply sufficient to completely safeguard the rights of the people. Section 21 of that instrument provides that the only ordinances which do not go into immediate effect and must be submitted to the electorate are those granting any franchise for the supply of light or water, or for the lease or sale of any public utility, or for the purchase of land of more than fifty thousand dollars in value. Apparently this is as far as the referendum should go. Any further extensions merely hamper the administration and serve no good purpose, and inasmuch as the people may use the initiative to repeal any objectionable ordinances, a more extensive application of the referendum is unnecessary.

One of the important questions in connection with direct legislation is in regard to the particular character of legislation to which the initiative and referendum may be applied. Should the people exercise the right of direct legislation over every act and thing which may be done by the council or only over ordinances which are purely of a legislative character? The courts have distinguished administrative acts from legislative acts by declaring that administrative acts are those things which are necessarily imposed on the council by the provisions of the law. There are decisions holding that the referendum may be applied to ordinances involving street work and bridge construction, but the general opinion seems to be that on matters which are purely administrative such as the appointment of subordinate officials or the purchase of supplies, the council

should be free from interference by the electorate. This is probably based on the theory that the people occupy a position similar to the stock holders of an industrial corporation, with the council as the board of directors. If satisfactory results are not forthcoming the people as stockholders should have authority to change directors but not to interfere with the subordinate employees.

Direct legislation is a logical and essential feature of the commission form of government. All the power formerly held by the mayor, the large legislative body and numerous other officials, is

now reposed in a few individuals under the commission form of government. That this great power may be reposed with safety and in confidence is due to the fact that in event of its misuse the people may take it into their own hands by resorting to the initiative, referendum or recall. Should our laws be so amended as to provide more reasonable regulations for its exercise, it will not be long before the doctrine of direct legislation will be universally accepted as a proper and valuable feature of our system of government.



PUBLICITY OF MUNICIPAL AFFAIRS

BY HON. THOMAS MONAHAN, MAYOR OF SAN JOSE

The power of the public press does not spring from the fact that it always rightly or truly or impartially publishes the facts regarding the personal happenings or public interests with which it daily claims and exercises the right to deal. In fact there are those who assert and will seriously attempt to prove that our daily newspapers are more frequently wrong than right, more often false than true, and more likely to be prejudiced than impartial in publishing the world's big budget of daily news. Notwithstanding this infirmity, the truth remains that the public press is by far the most powerful agency in moulding the opinions and directing the actions of men and women, known to the world of today.

What is the source of this power? It is to be found in the *fact* of *Publicity* itself. The desire of mankind for news is as old as the fatal curiosity of the

common parents of our race; for we are told that it was the promised "knowledge of good and evil" which tempted Adam and Eve to their fall. This passion for knowledge, this insistent demand for "some new thing" has been the uplifting and advancing spirit of every age. It is the prolific Mother of Discovery, Invention, Science, Art and Education. It has filled the world with libraries, and the innumerable offspring of the printing press is perhaps the most astounding wonder of this Modern Age of Miracles in the way of human accomplishment.

One of the most significant signs of our present strenuous age is found in the way this universal passion of mankind for news is manifesting itself with regard to the conduct of public affairs. In our own country especially the demand for publicity in relation to every detail of public business is increasing every

year, and with every election we even require of our candidates for office that they make a public record of their advance expense account in making the race for the office to which they aspire; and when they are once in office, there is an increasing public demand that their every official transaction shall be done under the public eye, and shall be reported, in some form or other, to the public ear and understanding.

I desire to put myself on record before this important body as being in the fullest harmony and accord with this public demand for publicity in relation to every detail of municipal affairs. I hold to the opinion that every meeting of every Council, Department, Board or Commission in a municipality *should be a public meeting*, and which, by some means, the people should be invited and encouraged to attend. I am opposed to executive sessions of public bodies or officials wherein important details of civic business are discussed and determined behind closed doors. I believe that the more we take the people into our confidence, the better they will be satisfied with our official acts and conduct, and the more zealous every public servant will become in the faithful performance of duty, to the end that he may be able to endure public scrutiny and be worthy of popular confidence and esteem.

With respect to official reports, there is also, in my opinion, a strong demand for a much needed reform. It lies along the line of simplified bookkeeping and easily comprehended statements of public transactions, accounts and balances. Too frequently the figures of such official reports are intelligible only to experts and are worse than Greek to the average mind. I am opposed to all such methods of keeping the people misinformed with relation to the state of their financial affairs, and I strongly favor the

adoption of a simple and uniform system of municipal bookkeeping and official reports among the cities of California who are members of this League.

Finally, gentlemen, as to the best method of promoting and securing publicity in relation to municipal affairs, I am a strong believer in the practical utility and benefit of an official municipal paper. In quite a number of the most progressive Eastern cities the weekly or monthly publication of the municipal paper is an accomplished fact and in several of these cities it has come to be a permanent institution. In California we have also several municipal publications, and in a number of recent city charters the publication of an official gazette is either permitted or required. The benefit accruing to a city from such a publication is patent to every one who will give the subject a thoughtful consideration. By the systematic publicity given thereby to the reports of all officials, the people are kept constantly in touch with every department of the city's business and are thus enabled to know whether the march of improvements is up to, in advance of, or behind the needs of the city, as well as beyond, or below, its ability to pay the bills. The systematic publication of ordinances in clear type and readable form is also a great advantage to the public in keeping the average citizen informed regarding the laws under which he is governed in the details of his daily civic life; such as the plumbing ordinances, the health, sanitary regulations, the rules and requirements governing the disposal of garbage, etc. In very many cases confusion, discontent and criticism of public officials would be avoided if the people could at all times be kept advised as to the contents of city ordinances and the degree and equality of their enforcement.

But, it may be objected, the municipal

paper will come into competition with the daily or weekly press, which will therefore resent its appearance as an intrusion into their domain. This is by no means the case, for the official municipal paper, wherever published, has been found to be a very useful ally of the unofficial press by furnishing printed copies of reports, ordinances, and other interesting public data, which reporters would otherwise be obliged to dig from the files. In other respects also the municipal paper operates beneficially, and that is in the elimination of garbled or partial reports of the acts of public officials. One of the greatest evils of our modern life is that which springs from persistent misrepresentation of the acts and conduct of the men whom the people have chosen to have charge of their public affairs, in the pages of a

partisan press. If the publication of a full, true and authenticated report of the official life of the city in the pages of a municipal paper would lend to diminish this evil, then I am sure that this influential body of men, representing the combined official life and force of the cities of California, will agree with my closing statement, which summarizes all that I have said: First,—the fullest publicity in all municipal affairs is the insistent demand of our present progressive age; and second, — the up-to-date medium for such publicity, the best method of engaging public interest and attracting popular attention in regard to the details of a city's official life, and the surest safeguard against misrepresentation of the acts and conduct of public servants, is the "*Official Municipal Paper*."



IS MUNICIPAL* OWNERSHIP OF LIGHTING AND POWER PLANTS PROGRESS OR RETROGRESSION?

BY WESLEY C. MILLER, POWER STATION ENGINEER

Editor's Note.—Mr. Miller was formerly power station Engineer of the Southern Pacific Company, his principal work being the construction and design of the Fruitvale Power Station in Oakland, one of the most economical power stations in the country.

This question may be answered by a study of the following considerations:

- Adequacy of Service.
- Efficiency of Service.
- Cost of Service.
- Permanence of Investment.
- Future Development.

So much has been written, that little which is new can be added to the literature concerning the adequacy, efficiency and cost of privately—versus municipally—built, owned and operated light and power plants.

It is intended in this article to admit

all that is usually claimed for municipal ownership of the utility under discussion and yet show it to be a backward step.

In the December, 1908, issue of "Power and the Engineer," it is stated in part in an editorial:

"It is doubtful if the statement that a city can buy current cheaper than it can make it is true. In the open market it can borrow money with which to build at a lower rate of interest than any private corporation. It can employ equally expert men in all lines of sta-

*Municipal is used in its restricted sense, "belonging to a city."

tion construction and operation work at as good or better prices than any private concern.

"Cost of production and distribution in plants serving all sorts of communities, from the most densely populated cities to the rural districts is a figure either well known or easily obtainable, and the same set of men can do equally good work whether employed by the city or by a private company and the operating expenses of a municipal plant would be no greater than those of the privately owned plant. Depreciation, repairs and taxes would be the same in both cases, but the lower rate on the money invested would be in favor of the municipal plant."

It is probable that the editor of *Power* would defend his opinion by calling it a statement of what is possible under most favorable conditions, rather than a description of what is usually experienced in plants municipally built, owned and operated. Nevertheless, it is true that, in the four years which have passed since it was written, conditions have rapidly improved until today there are publicly owned plants which do compare favorably with or exceed in reliability and economy some which are privately owned.

The growth of public service commissions, the extension of civil service requirements and the increasing desire of the public to be served by business men and engineers rather than by politicians, will, in the future, extricate the power plant, its supply department and its personnel from the uneconomical management of the cliques who strive to obtain and retain office.

Assume now that this Utopian felicity is with us and then for a moment review. Imagine a number of municipali-

ties grouped closely, each having its own plant, built at reasonable cost, efficient as a unit of its size and load factor can be, and managed and operated by thoroughly competent business men and engineers whose term of office is satisfactory service. Does not this state of affairs closely approximate the condition in this country before the advent of the large power companies, who by building central and substations effected great economies? Whether the public has obtained the benefit of these savings is beside the point of discussion.

Consider again the group cited above—does it require more than mental arithmetic to prove that one power station located as nearly as economically possible to the center of ultimate demand for energy, with small outlying substations, could be built and operated for less money than three or four independently owned and operated stations, one in each of the cities. The larger generators in the single station would require less fuel per unit of output than the smaller generators in the three plants. The labor item covering both administration and operation would be reduced. The equipment would be uniform and standardized instead of conflicting with the installations of different characteristics advocated by men of different views and possibly competing ambitions. The increasing use of higher voltages successfully is bringing power stations relatively nearer to the coal mines and oil-fields and in many cases it would be cheaper to use copper for transmitting electricity than pipelines and freight cars for transferring fuel.

The recently suggested combining of important areas into a "Metropolitan district" can be extended to include

light and power service from a public plant. The supervision of the public utilities commissions should be invoked and experienced engineers consulted to avoid the ill considered installation of

plants which from the start will cost more to build and operate thereby becoming an unnecessary and easily avoidable burden on the tax payer.

ITEMS OF INTEREST

Riverside Plans Waterworks Improvements.—The report of Engineers Burns & McDonnell who were recently employed by the city of Riverside to appraise the plants of the three companies in that city and to plan for needed extensions and developments, was received on Oct. 10th by the city council and representatives of the three civic bodies of that city. The plans were explained in detail by Engineer Burns and after the matter had been thoroughly discussed there was a unanimous expression in favor of their adoption, and a committee was named by Mayor Peters to negotiate for the purchase of the Riverside, Artesia and Kyes plants. Those present expressed themselves highly pleased with the manner in which the engineer and the mayor had carried out the work of getting all the information at hand and preparing such a comprehensive and thorough report, and felt that if the proposed improvements were carried out the city would be most admirably equipped as to its water supply.

Traffic Record.—Pacific Municipalities, San Francisco, Cal., Gentlemen: We believe that the following statement of traffic record taken from 7 A. M. to 9 P. M., Sept. 1, 1912, on the Bitulithic Pavement laid in the year 1905 on Sheridan Road Boulevard, Chicago, from Byron St. to Evanston Ave., a length of approximately 3,000 ft., will be of interest to your readers:

<i>Character of Vehicle</i>	<i>Number of Vehicles</i>	<i>Estimate of Tons</i>
Horse-drawn pleasure vehicles, estimated ½ ton each	87	43
Bicycles, estimated at 150 lbs.	187	14
Motor cycles, estimated at 300 lbs.	550	82
Automobiles, estimate at 1¾ tons	6,765	11,838
Total	7,589	11,977

Width between curbs, 40 ft.

Number of tons per foot of width, 299 tons.

The Bitulithic pavement at the date of taking this traffic record had just

completed its seventh year of use and had received no repairs since being laid, and has received universal commendation of taxpayers and officials.

Very truly yours,

WARREN BROTHERS COMPANY,
GEO. C. WARREN, President.

Boston, Oct. 25, 1912.

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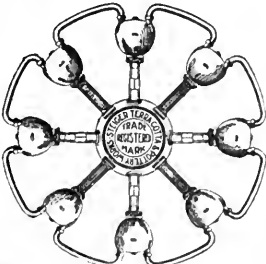
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QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry. When requested, inquiries will not be published.

QUES. Do you know whether the provisions of Sec. 77 of the Improvement Act of 1911 authorizes the advertising and award of contract by municipalities for the work between railroad tracks or the corresponding provisions in Vrooman Act have ever been actually resorted to and if so with what success?

ANS. We are inclined to the opinion that an ordinance may be enacted requiring the use of paving blocks along the side of the rails. There was a decision in 1869 holding that an ordinance of Philadelphia requiring rail-

way companies to pave with a particular kind of pavement was unreasonable, but there is another decision in 1891 declaring that "the city of Philadelphia may determine the material with which the paving may be done, and require it to be done with a better and more expensive material than was in use when the company was chartered." From decisions to be found in Vol. 36, Cyc. of Law, page 1404 and Vol. 44, Century Digest, Column 3236, we believe you may go ahead on the plan suggested and

that the street railway company will be required to comply with the provisions of such an ordinance and use the paving blocks mentioned.

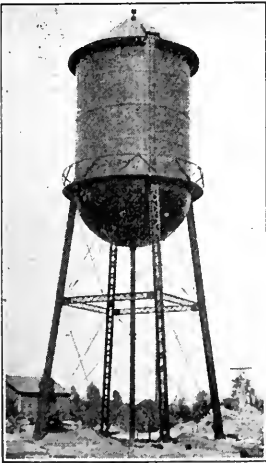
QUES. Sec. 757 of Act 2348 of the General Laws governing cities of the fifth class provides that "no person shall be eligible to or hold any office in such city, whether filled by election, or appointment, unless he be a resident and elector therein, etc."; now then, is a policeman an officer within the meaning of this section or is he merely an employee?

ANS. We have been informed that there was a decision rendered in this state which held that a "policeman" was not an official in this sense but merely an employee of the city. We fail to find such a decision however; on the contrary, there have been a number of decisions rendered throughout the country holding that policemen are of-

ficers. Policemen are officers within the meaning of an ordinance declaring that all said officers must be residents and qualified electors of the city." See Cyclopoedia of Law, Vol. 28, page 497, and the cases there cited.

THE LEAGUE OF PACIFIC NORTHWEST MUNICIPALITIES.

The above-named organization for the cities of Washington, Oregon and Idaho, was recently formed at Walla Walla, Wash., and the first Annual Convention was held in that city on Oct. 24th and 25th. All the large cities of the Pacific Northwest were represented at the conference, over 60 city officials being registered in attendance.



This **Steel Water Tower** was erected for a Los Angeles Land Company.

We have installed over 30 **water towers** in California and hundreds throughout the country.

Our **Standard Steel Water Towers** are ideal for private estates, cemeteries, fire protection, towns, manufacturies, etc. Made in any capacity and erected anywhere; 10,000 to 300,000 gallons and up.

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Catalogue B sent upon request.

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ALL KINDS OF STRUCTURAL STEEL AND ORNAMENTAL IRON. WRITE FOR PRICES

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In accordance with a special invitation, Mr. W. J. Locke, Assistant Secretary of the California League, delivered an address on the history and work of this organization, and at his suggestion a resolution was adopted making "Pacific Municipalities" the official organ of the new league. This means a large increase in circulation and greater value to our advertisers, inasmuch as the magazine will be sent hereafter to the officials of all the cities in the new league in the states named.

The papers read at the convention of the Pacific Northwest League and the discussions which followed were of a very high order and they will be published in "Pacific Municipalities" at an early date. Mr. Miles C. Moore, ex-governor of Washington, was elected President, and Chas. G. Haines of the Department of Political Science, Whitman College, was chosen Secretary. With this issue Mr. Haines becomes associate editor of "Pacific Municipalities." The excellent Municipal Reference Library of Whitman College has been turned over to the use of the new league.



WHAT THE CITIES ARE DOING

Ontario has voted \$75,000 for road building.

Riverside is to have a municipal market.

Alhambra is talking of having a municipal band.

Chico is contemplating the purchase of a paving plant.

Hermosa Beach is talking of installing a fire protection system.

Madera trustees have ordered street improvements to cost about \$4509.20.

Antioch recently voted down a proposition to vote \$31,000 bonds for municipal improvements.

Grass Valley Ladies' Improvement Club have started a "Spotless Town" campaign.

Santa Clara officials are threatened with the recall if they proceed with proposed street improvements.

Berkeley is to have a Bureau of Municipal Research and Efficiency, similar to the bureau in Chicago and New York.

Santa Clara is seriously considering the paving of 200 blocks of streets. It is proposed to adopt the ten-year installment plan.

Los Angeles has determined to sell all the lands, cement plants, machinery and other salvage of the aqueduct for which it no longer has use.

Alviso citizens are demanding an immediate improvement of the method of disposal of the sewage of San Jose, claiming that the present outfall sewer is becoming an intolerable nuisance.

Pasadena has purchased the entire plants of the three private companies that supplied that city with water, for the sum of \$1,178,307.08. The money has been paid and possession taken by the city.

Santa Barbara's City Council is in favor spending third of a million for nine and one-half miles of pavement. A three district plan is proposed, and it is said a graduated system of assessments will make the burden lighter under 5 year plan.

Santa Paula trustees declare that the open ditches of the Interurban and Santa Clara water companies within the city limits are a nuisance and a menace from a sanitary viewpoint, and measures will be taken to compel the companies to pipe the water through town.

Alameda may ask for a referendum election in order to make a law that all wires either for telephone or electric light be placed underground in the future, claiming that such a law should be passed for general safety, also that the city can never be beautiful while the wires are on poles.

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

Write for Catalogs. Mention Pacific Municipalities When Writing

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S. F.

Asphalt Machinery

A. L. Young M'chy Co., 26-28 Fremont St., S. F.

Barber Asphalt Paving Co., S. F. & L. A.

Arch. Terra Cotta

Gladding, McBean & Co., Crocker Bldg., S. F.

Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.

N. Clark & Sons, 112-116 Natoma St., S. F.

Automobile Public Service Wagons

American LaFrance Fire Eng. Co., 660 Mission St., S. F.

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Webb Motor Fire Apparatus Co., 550 Montgomery St., S. F.

Bitulithic Pavement

Warren Brothers Company, Los Angeles, Cal.

Concrete Mixers

Barber Asphalt Paving Co., S. F. & L. A.

Parrott & Co., San Francisco & Los Angeles

Constructing Engineers

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.

American Engineering Corporation, 57 Post St., S. F.

Burns & McDonnell, Riverside, Cal., K. C., Mo.

Roberts & Dennicke, Sheldon Bldg., S. F.

Culverts

Cal. Corrugated Culvert Co., Los Angeles and W. Berkeley

Standard Corrugated Pipe Co., S. F. & L. A.

U. S. Pipe Co., S. F.

Dump Carts and Wagons

A. L. Young M'chy Co., 26-28 Fremont St., S. F.

Electrical Plants & Machinery

A. L. Young M'chy Co., Fremont St., S. F.

Engines

Dow-Williams Engine Co., Sheldon Bldg., S. F.

Engravers and Bond Printers

A. Carlisle & Co., 251 Bush St., S. F.

Sierra Art Eng. Co., Front & Com. Sts., S. F.

Fire Department Equipment

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Engines

Gorham Eng & Fire App Co., 48 Fremont St S. F.

Fire Hose

Gorham Eng & Fire App Co., 48 Fremont St S. F.

The Gutta Percha & Rubber Mfg. Co., 34 Fremont St., S. F.

Eureka Fire Hose Mfg. Co., 54-58 Fremont St., S. F.

Bowers Rubber Works, San Francisco

Fire and Police Boats

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Pumps

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Gasoline Engines

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Hydrants

Water Works Supply Co., Monadnock Bldg., S. F.

Inspections and Tests

Robt. W. Hunt & Co., 418 Montgomery, S. F.

Smith, Emery & Co., 651 Howard St., S. F.

Municipal Accountant

William Dolge, C. P. A., 311 California St., S. F.

Municipal Castings

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Municipal Engineers

Sloan & Robson, Nevada Bank Bldg, S. F.

Roberts & Denicke, 461 Market St., S. F.

Smith, Emery & Co., 651 Howard St., S. F.

Municipal Printers

A. Carlisle & Co., 251-253 Bush St., S. F.

Municipal Water Works

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Smith, Emery & Co., 651 Howard St., S. F.

Pavement Materials

Barber Asphalt Paving Co., S. F. and L. A.

Warren Brothers Company, Los Angeles, Cal.

Pipes

U. S. Iron Pipe & Foundry Co., 701 Monadnock Bldg., S. F.

Pumping Machinery & Supplies

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Water Works Supply Co., Monadnock Bldg., S. F.

LIST OF RESPONSIBLE FIRMS—Continued

Playground Apparatus

A. L. Young Machinery Co., S. F.

Road Machinery

Good Roads Mach'y Co., San Francisco.

A. L. Young M'chy Co., Fremont St., S. F.

Barber Asphalt Paving Co., S. F. & L. A.

A. F. George & Co., Los Angeles.

Road Oil

Standard Oil Co., S. F.

Roofing

Barber Asphalt Paving Co., S. F. and L. A.

Rubber Goods

Bowers Rubber Works, San Francisco

Sanitation Expert

Harold Farnsworth Gray, Berkeley, Cal.

Scrapers

A. L. Young M'chy Co., Fremont St., S. F.

Septic Tanks

Pacific Flush Tank Co., Chicago.

Sewage Pumps

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Sewer Fittings

Pacific Flush Tank Co., Chicago.

Sewer Pipe and Terra Cotta

Gladding, McBean & Co., Crocker Bldg., S. F.

Steiger Terra Cotta Co., Mills Bldg., S. F.

N. Clark & Sons, 112-116 Natoma St., S. F.

Sewer Systems

Sloan & Robson, Nevada Bank Bldg., S. F.

Street Sweepers

A. L. Young M'chy Co., Fremont St., S. F.

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Neptune Meter Co., S. F. & L. A.

Water Works Supply Co., Monadnock Bldg., S. F.

Water Tanks and Towers

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Geo. E. Dow Pumping Engine Co, S.F. & L.A.

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Water Works Supply Co., Monadnock Bldg., S. F.

Sidewalks (Cement)

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Street Signs

A. L. Young Mch. Co., S. F.

Cal. Metal Enameling Co., Bairdstown, L. A.

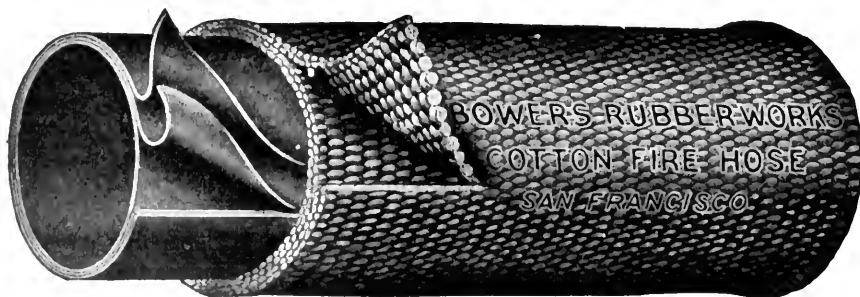
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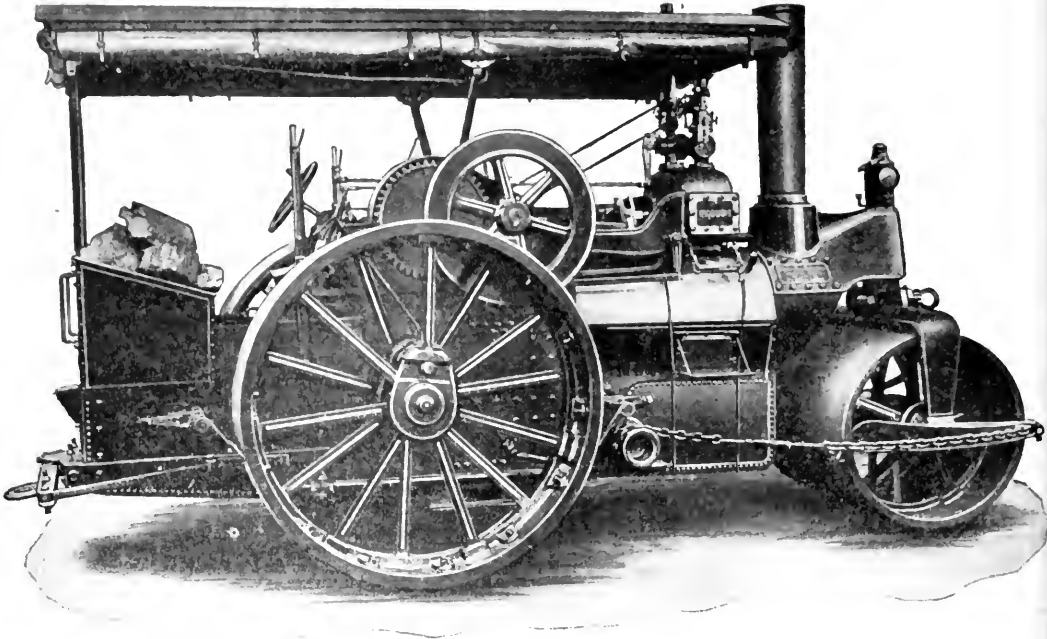
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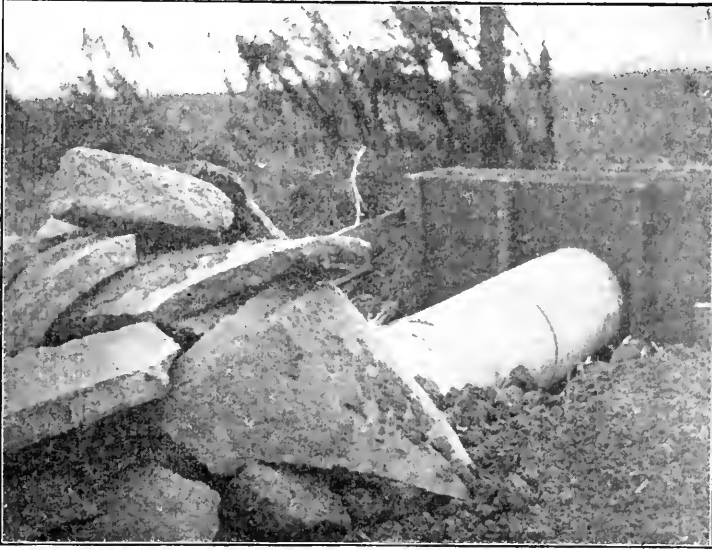
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Half of the Troubles of the Road Builder Arise From Bridges and Culverts.

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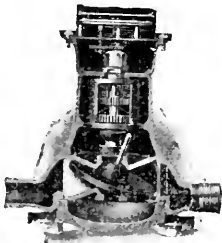
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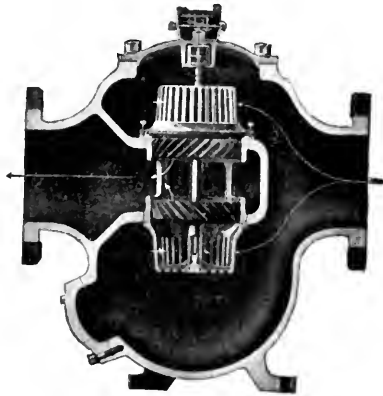
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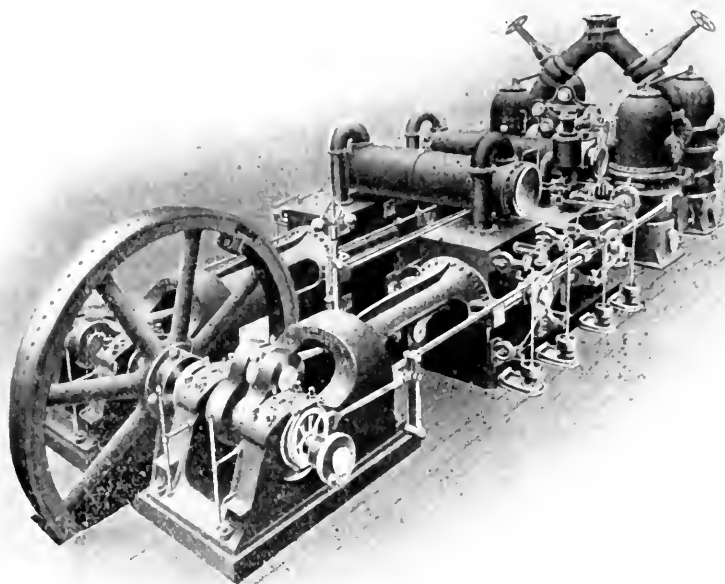
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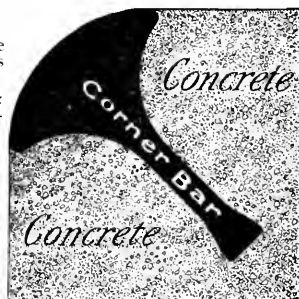
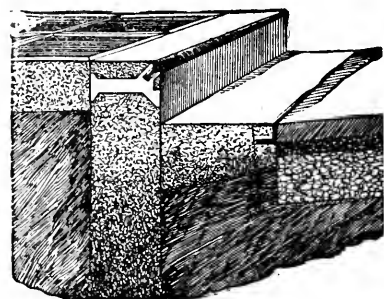
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Architects are invited to read pages 242 and 243 "Sweet's Index."

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CONVENIENCE**

CONTRACTING

**PUBLIC
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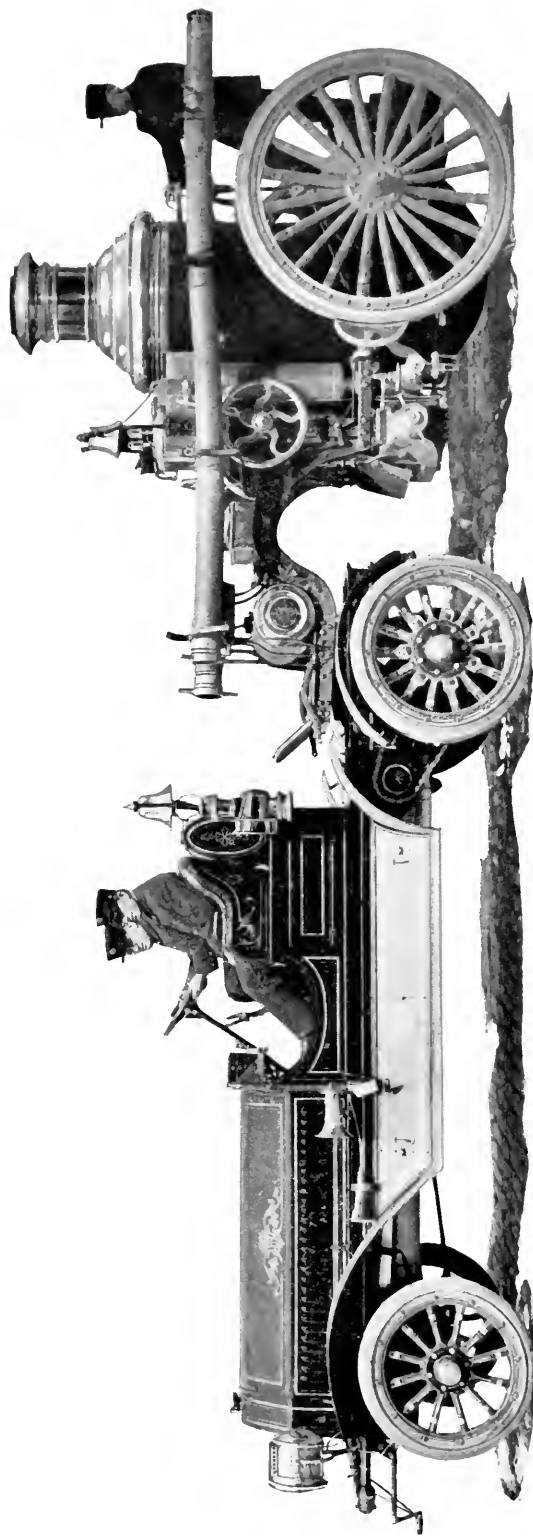
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Stockton, Cal.
Sacramento, Cal.

Marysville, Cal.
Fresno, Cal.
Portland, Ore.

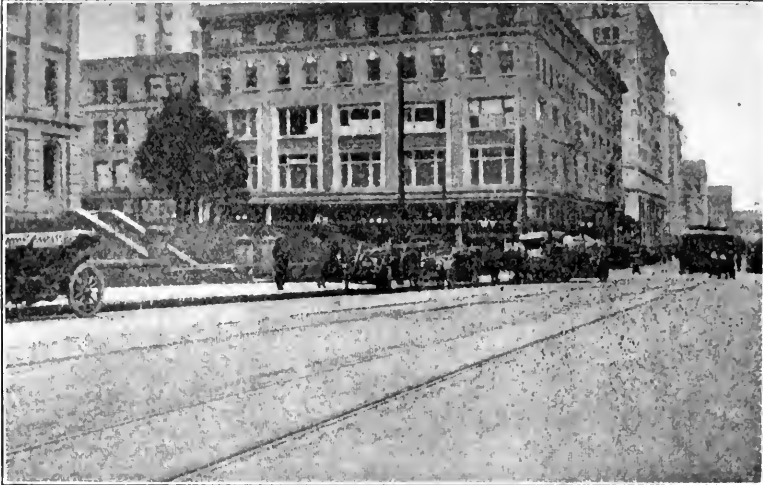
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BITULITHIC, the pavement that is made of varying sizes of the best stone obtainable and Bituminous cement, having the density, durability and inherent stability a successful standard pavement must have.

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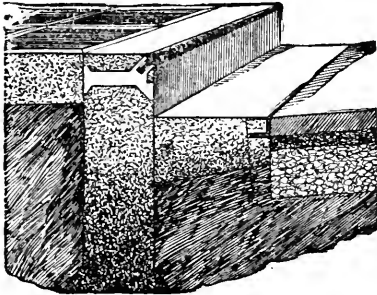
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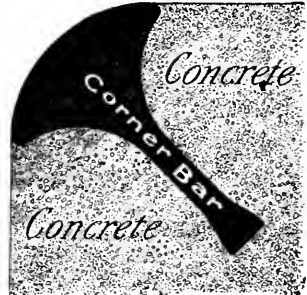
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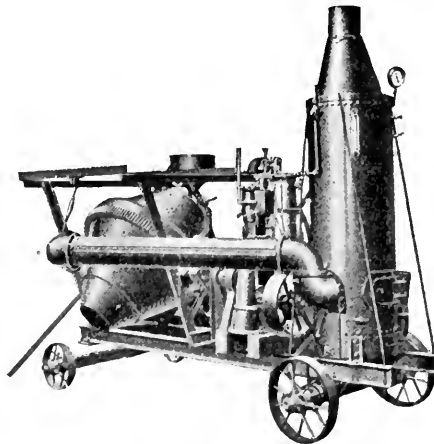
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The League of California Municipalities maintains, in connection with the Secretary's Office, an Information Bureau where the officials of the municipalities belonging to the League can secure information on all subjects relating to municipal affairs, also the loan of copies of municipal ordinances.

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Pacific Municipalities

OFFICIAL ORGAN OF THE LEAGUE OF CALIFORNIA MUNICIPALITIES
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Entered at Post Office, Santa Clara, Cal., as Second-Class Matter

VOL. XXVI

FOURTEENTH YEAR

No. 12

EDITORS - - - H. A. MASON AND WM. J. LOCKE
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EDITORIAL AND BUSINESS OFFICE NINTH FLOOR, PACIFIC BLD'G, SAN FRANCISCO

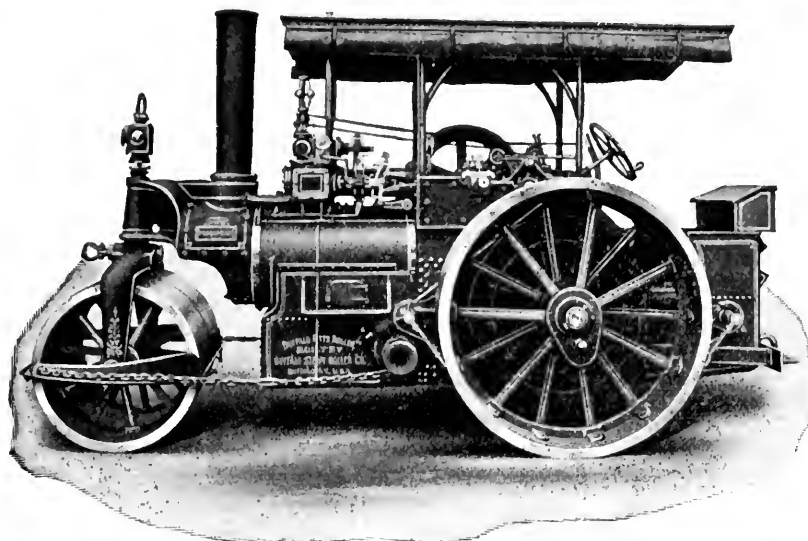
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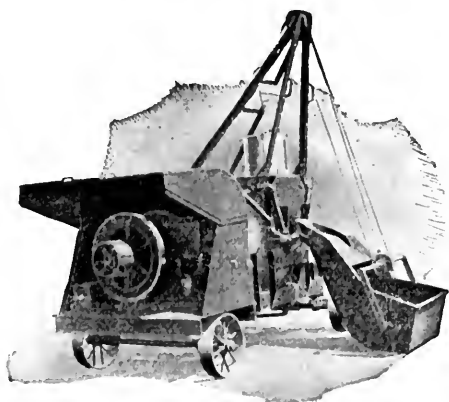
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A Journal for Progressive Cities

VOL. XXVI

DECEMBER 1, 1912

No. 12

PROCEEDINGS OF THE FIFTEENTH ANNUAL CONVENTION OF THE LEAGUE OF CALIFORNIA MUNICIPALITIES

HELD AT THE UNIVERSITY OF CALIFORNIA,
Berkeley, Cal., September 23 to 28, Inclusive, 1912

REGISTER OF DELEGATES IN ATTENDANCE

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ALHAMBRA—Dr. F. E. Corey, Health Officer; Sloan Pitzer, Attorney.

ANAHEIM—O. E. Steward, Engineer; M. Nebelung, Mayor; H. G. Ames, Attorney.

ANTIOCH—B. D. Marx Greene, Attorney.

AUBURN—W. B. Lardner, Attorney.

AZUSA—Fred L. Clark, Councilman.

BAKERSFIELD—H. S. Dumble, Trustee; J. R. Williams, Trustee.

BERKELEY—J. Stitt Wilson, Mayor; J. J. Jessup, Engineer; C. C. Kennedy, Deputy Engineer; L. Hans, Sanitary Engineer; H. S. Payson, Asst. City Engineer; Harry D. Kelsey, Supt. Streets; C. Engelretsen, Street Department; Rufus Kerlinger, Deputy Engineer; James J. Hill, Deputy Supt. Sts.; E. B. Norton, Councilman; Redmond C. Staats, Attorney; H. J. Banker, Building Department; H. J. Squires, Assessor; W. J. Seaborn, Clerk; Frank McAllister, Attendance Officer; J. J. Benton, Health Officer; John T. Peck, Mechanician; Geo. T.

Watson, Police Officer; M. L. Hanscom, Auditor; Beverly L. Hodghead, Ex. Pres. League; Dr. H. N. Miner.

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- WILLITS—Con. H. Goldberg, Attorney.
- TACOMA, WASH.—W. W. Seymour, Mayor.
Total cities represented, 104.
Total delegates registered, 302.

COMMISSIONER J. L. SEHON, of San Diego. I move the appointment of a committee of five, to be selected by the President from the main and auxiliary bodies, to which this report of the President may be referred, with instructions to the committee to report back to this convention before its final adjournment.

THE PRESIDENT. If there is no objection that will be the order. The committee will be appointed later. Hearing none, it is so ordered.

We will now listen to an address of welcome by Honorable J. Stitt Wilson, Mayor of Berkeley, whom I now take pleasure in introducing. (Applause.)

ADDRESS OF WELCOME

BY J. STITT WILSON, MAYOR OF BERKELEY

Mr. President and Delegates: As the chief executive of the City of Berkeley, which has the honor to-day to receive you, it becomes my great pleasure to welcome you to our midst.

The committee on reception in the City of Berkeley, organized to receive you, consists of members of the City Council and city officials, members of the Board of Trade, the Chamber of Commerce, and the City Club and of the University. And I am sure that I speak for all of them when I say that we are proud to have this body with us in the City of Berkeley, and that we will do everything in our power to make your stay in our city and community both pleasant and profitable.

We are confronted here with profusion on every side in our program, so that it may at first glance look a little chaotic. But order will come as the days proceed. We were to-day obliged to watch six or seven entrances to our city to greet you. We found you, not at one station, but at six or seven—and some of you must have come in by aeroplane, because we certainly missed you. And I am sure that the officials of Berkeley and the officials of all the cities feel that our debt of gratitude is great to the University for providing us with such equipment in which to hold this annual convention of the League of California Municipalities. (Applause.) It is wonderful—almost perplexing in its abundance. And when we turn to this program, you will have to keep moving to complete this week's work.

Our program of entertainment and enjoyment for you is likewise somewhat extended. Indeed, the Secretary of this

League has reminded us that we have gone too far in that respect. For I do not speak this word of welcome to you on behalf of the City of Berkeley alone but also on behalf of our neighboring cities, the cities of Alameda, Oakland and Richmond, who extend their welcome, and are planning to show you their hospitality during this week. In Alameda they will entertain us on Thursday, I believe, and the Oakland citizens are to entertain us Friday night. On Saturday the people of the "little Pittsburg" of the West are to take us over and entertain us there. So great is our program that I am asked by the committee to warn you not to allow entertainment to carry you too far away from our duties.

I may say to you in addition to this general word of greeting and welcome, that if any of you find yourselves unhappy or distressed in any way whatever concerning any of the affairs of this convention, find a man with a yellow ribbon, the ribbon of the reception committee, and he will take pains to make you comfortable. If you are not properly housed, if you find it difficult to get your luncheon where you would be satisfied, or anything else that pertains to your comfort, please seek us out and ask us, and we will put forth our every effort to make you happy, and to make your stay a pleasant memory after you have gone.

As delegates in this League convention, we are to be congratulated as city officials for the great service that we are called upon to perform. The duties in the nation and the duties of the state are hardly superior to the duties which are entrusted to us. The city is a new

thing in civilization. The trend of the times is to the building of the great cities. Population tends more and more to fill our cities. Even in such a state as California, we find that over 40 per cent. of the people live in the cities which we are called upon to administer. And that, indeed, is a great duty and a great trust, and one which is worthy our highest effort and our noblest enthusiasm.

The cities of America have been the despair of America. They are yet to be turned into the hope of America. Journalists and the publicists have written on the shame of American cities. And this shame of American cities that has existed to such an extent up to the present time, especially in the great centers of population, needs to be wiped away from our escutcheon, and we need to move into a new era in city government, a higher era, an era in which that shame will be no more, an era in which we will be able to speak of the glory of the American city. This shame of our American cities is traceable to the fact that our cities have been permeated by the corrupt influences of powerful corporations. And to the extent that our cities extend their usefulness and have home rule, as has been indicated by the President, and gain back the confidence

of the people, becoming the agents of the people, I believe that we shall take on new meaning and new grace. Instead of the city administrator having less to do, he will have more to do. Instead of the principle of democracy being tried and found wanting, the principle of democracy shall be extended and applied until it shall be the principle not only of democracy but of social democracy, using the civic powers for the social and communal ends of our people.

I entertain the hope that, as we assemble in this city of Berkeley, under the auspices and with the assistance of the great State University, that we shall receive great inspiration from each other in these days, in the study of the subjects which will be laid before us. And we of the city of Berkeley, of the civic bodies, the members of the University and the civic officials, will lend every aid at our command to make your stay with us happy, and the influence of this convention satisfactory to the end.

We bid you, friends, a hearty welcome. (Applause.)

THE PRESIDENT. It is my pleasure to introduce to you the President of the University of California, Dr. Benjamin Ide Wheeler, who will bid you welcome to the University. (Applause).

WELCOME TO THE UNIVERSITY

BY DR. BENJAMIN IDE WHEELER, PRES. OF THE UNIVERSITY OF CALIFORNIA

PRESIDENT WHEELER. I am particularly glad to bid welcome to the League of California Municipalities to the University. You belong here. This is your institution. It is a public institution for public purposes. You are engaged in one of the highest

of errands, regarding public purpose and public existence. I am glad to welcome you here, because this is a school of California citizenship—that is what the University is for. It may train young men in filling beakers, and mixing things in beakers, but that all, in the

long run, inures toward making them better members of the community, living more helpfully within the life of the community, and giving of themselves more fairly and honestly and effectually to the service of the community.

We are glad to have you here, because we want our people to see you and to know what you are interested in, and because we want you to see us. We want you to see what it means to have a university assembled, composed of over seven thousand students. There are a great many people in California who do not know what they have in this University, who do not know that it is the second largest in attendance in the United States, that it is the eleventh in the world, that it has the largest body of undergraduates assembled to be found anywhere in the United States, that it has this year the largest entering class to be found anywhere in the country. (Applause) And I would not care for the bigness, if it were not that we know we are doing honest work here, in order to give these young people correct ideals concerning living together with other people in communities in California. And I know that the spirit that is abroad among these students means something worth while to those who are interested in the career of California Municipalities.

You can afford to look in here and learn something about our university. It has grown over night. Five hundred more students here than last year at the same time. The rate of 15 per cent is something unheard of. We have not been able to meet the need. We need an auditorium like this but far larger; this one has just gone into use—the

chairs, as you see, are not yet arrived from the remote East—to which we have, unfortunately, to send whenever we want a doorlock or a hinge. But we have not been able at all to keep up with the demand for space. If you will look into the laboratory here, you will see the students at work in the plain open air. It is just as well for them, after all. Californians have learned how to match endeavor against difficulty all down the years, and we are still producing pioneers, boys with the pioneer's gumption. I don't altogether regret it that they have some struggles and some difficulties—they are all mighty good natured about it, that is the beautiful thing. (Applause)

The State is giving them something here that is very valuable to them, and *giving* it to them—no tuition. It is a fact that the education of a student costs the university per head \$160 a year, and for those who have the engineering or agricultural courses, it costs us a great deal more than that. They know that is being given to them by the State, and they are thankful for it. They are good citizens in prospect, they are enthusiastic lovers of this University, and through loving this University, they come to love other things—the State, the outer community.

I am glad to welcome you here because you represent the municipal governments of the State, and you represent, too, the study of municipal government. There has been a great deal accomplished of late in that field. We were frightfully behind in municipal government twenty-five years ago. We had been extending to urban communities the methods advised originally for

governing towns in Massachusetts and counties in Virginia. And it did not work very well with the dense population of our cities. We have found out that there was too much town meeting and county politics in the city government for us to make cities stand for what they meant. We found out that playing politics according to the game an American loves so well, and which is a good game to play, too, I admit, is not suited to the problems of cities where sewers are to be built and streets are to be paved and light is to be brought in and water provided. We found out that it was necessary to go at city business in a different way and in a different spirit. Politics is all very fine—it is necessary to keep American citizens alive, to prod them up to their duty, to make public opinion take shape, so that governing can be. But when it comes right down to the business of laying water pipes and bringing light, and laying sewers of the right sort, then the politics of the Virginia counties and the Massachusetts towns won't work, and we must get some other device.

We have got to change our State governments vitally within the near future. Our county governments are the worst of all. Our Federal Government has improved the most in recent years, since the introduction of the reform of the civil service. In the United States treasury department we tend to have plain business dealing. We have reason to be proud of the United States Army in the work it has done in connection with the Panama Canal. (Applause) It is evident that the army is tolerably out of politics; otherwise it could not build a canal.

If democracy is to be a success, it must stand the ultimate test of efficiency. If democracy cannot avail itself of

expert service, then democracy won't do. But we can have democracy and expert service together. We are giving people an illustration of it in our cities now that are under the commission form of government. The commission form of government, of course, does not bring in the millenium all at once, except in Berkeley. (Applause). But it takes a long step in the direction of utilizing expert service. The time has got to come, and come quickly, wherein democracy, practiced in our cities and state and nation, will yield results of the best for the lowest cost.

There has been, of course, fearful waste, because men were appointed or elected to do things who did not know anything about them. The old political idea of the Virginia counties and the Massachusetts township was, that when an office was vacant, there were about a million people in the United States capable of filling that office, and if you did not think so, you were not democratic, you were a snob and an aristocrat, and should go to England to live. That's the old idea. Whereas, the expert theory is, that when there is a job open, there are mighty few people who can fill it, and that we want to get for the benefit of the city, the one man who is best fitted to do it, if we can afford to pay for him, and can find him out. Democracy must stand that test. And it will stand it. There was a pseudo democracy, a fake democracy, which insisted that all the offices must be left the people to fill. And so they would let us vote for a State Printer and a Secretary of State. What could be more entirely absurd than that? And finally, with the multiplication of offices, we have come to have ballots that have to be rolled up, that have a hundred names on them. What is there better where-

with to defeat democracy, than such an arrangement as that? It defeats democracy, because the people cannot possibly vote intelligently on one hundred things at once. It confuses the popular mind. The short ballot, with all that goes with it, with the principle underlying it, represents a much higher type of democracy than the government that will make you vote on a lot of people you cannot by any chance know anything about, and concerning whom you are, therefore, certain to vote more or less foolishly.

What we ask people to do, what we ought to ask them to do, is to render a clear judgment on a case that is presented to them with the greatest possible clarity. The case must be so stated, so analyzed, that the warfaring man may not err therein. That is democracy. Otherwise you are defeating the purpose of democracy, you are blinding the eyes of the common man, you are confusing the mind of the voter.

It is for our municipalities to establish, first of all, the principle of the short ballot by efficiency of government through a few men selected by the people, to take the responsibility, to stand in the limelight. The best safeguard democracy can have is to know its men, to know just what they are responsible for, what the limits of their responsibilities are, to put them in the lime light that they can be seen all the time. Then the people's interests can be cared for.

I welcome you here because subjects of this sort are interesting you, and are of profound interest to us. We have young men studying in those fields. The University is the place where we believe in the coming days the people are to have their final hearing. Here is the

place where we believe the salvation of this commonwealth is to be brought about. It is through the universities, and through the universities, because here are assembled the young men of the State in mass. One peculiarity offsets another. One tendency offsets another. Here subjects are presented in mass. The University cannot be a small place, it cannot exist where there is a small attendance, it cannot exist where a small number of subjects is dealt with, but it must be where the universality of human interests is dealt with—and one point of view offsets the other, and where a true catholicity is the result. A catholic point of view in human society must needs take into account the attitudes and methods of all the sciences and arts. That is the spirit of the University. It means open eyes and open doors. It means open opportunity. It sinks the shaft across the crystallizing strata of society, and forbids them. It exists in the interests of the whole. It takes account of the view of everybody. To such a University I beg to welcome you. (Applause)

THE PRESIDENT. To respond to the addresses of welcome which have been so ably given by the Mayor of Berkeley and the President of our State University, I will call upon a citizen of Berkeley, its ex-Mayor, and the junior past president of this organization, the Honorable Beverly L. Hodghead. Before giving him the floor, however, I want to say that, until about a year since, I had a very high regard and esteem for Mr. Hodghead, but about that time he went to Europe and left me with his load, and since then I have had it in for him. (Applause)

RESPONSE TO ADDRESSES OF WELCOME

BY BEVERLY L. HODGHEAD, FORMER MAYOR OF BERKELEY

Mr. President and Delegates: As you may have gathered from the words of welcome to which you have listened, the chief object of this League is municipal advancement; its hope, to make the conditions of living better in the cities of the state, and the serious purpose of these conventions, the interchange of thought on municipal expedients and an earnest search for that information which will enable its members the better to serve the municipalities which they represent. No other purpose would justify the existence of this organization.

I feel confident that I speak the sense of the entire body of representatives here present, and those who are yet to arrive, in assuring you, Mr. Mayor and President Wheeler, of their genuine pleasure at the invitation to hold this convention in Berkeley, and of their keen appreciation of this generous welcome expressed in terms of such unmistakeable sincerity.

Personally, I hope I do not need any words of welcome, for, like the poor, Berkeley has me with it always. So I feel qualified to speak as either host or guest, as welcomer or welcomee, as the lawyer would put it.

You have now been entrusted, constructively, with the keys of the city, a custom that prevailed when cities had keys. In more recent times, some of our American cities have been in greater need of padlocks and council-proof safes to protect their treasuries—a condition which it has been the steadfast purpose of organizations of this kind to amend.

Everybody has a key to Berkeley. I am told that upon your departure it will not be necessary for you to return it to the office or leave it in the door, but you may keep it as a token of this cordial welcome while you are here, and as an open sesame upon your return.

Now, the theme which suggests itself to my mind by the circumstance of this convention, is the relation between the University and the cities of the State. It seems most appropriate, and for this League most fortunate, that this session, called in the interest of general municipal improvement, is to be held in Berkeley, the University city, in which all the citizens of the State rightfully feel a proprietary interest. The University has been a great factor of influence in the recent era of charter revision in California, and doubtless it will be a greater factor and guide in the solution of the intricate problem which is upon us: the wise, honest, thorough, economic and patriotic administration of the modern municipality. I don't know that the University man himself in all cases would make a good public officer; but he can beat anybody telling somebody else how to do it. (Applause)

I doubt if many of you know the extent of the service which the University has rendered in this recent charter revision to which I have alluded. If my friend, the president of this League, who seems to be so fond of me, instead of sitting behind these breastworks, were in that quiet and peaceful city of San Diego, removed from all scenes of turmoil and strife, or else he were only as

far away as Paris, where some of your presidents have been when this League was in convention, I might say to him that it was largely due to the University influence that the Berkeley charter was formed and adopted, and that was the forerunner of the general adoption of commission charters in California.

But if successful and efficient administration were dependent alone upon mere forms of charter, our troubles would be over—this League could be dissolved, and the cost of your board bills saved to the municipality. But there is no skill in charter-making so far-reaching, and I am reminded by my immediate surroundings to say, that there is no political chemistry so perfect that its mere form is a guaranty of efficiency. Let it be conceded that vast progress has been made in municipal government in California, due largely to the agency of this League. Yet there is a great problem before us, in which the cities of the State will need the aid of the University. Its influence in recent years has not been confined to intellectual conquests. It has been an integral part, a potent agent, and the scientific guide in the industrial and economic development of this State. The farmers have learned to seek its aid, which once they scorned, the orchardists

and vineyardists have learned to appeal to it for assistance. Of no less importance is the problem of the cities. So let us learn to seek the same aid and guidance in the improvement of the industrial, social, the economic conditions of the cities of the State, where half of the people and half of the wealth are found. Let the cities invoke the aid of the University, and the thousands of young men and women who annually go out from its doors, in the creation of that public opinion, which will dignify and elevate the standard of efficiency in municipal administration.

I repeat, Mr. President, that I think it is fortunate and auspicious that this convention is held in Berkeley, thus bringing the University and the representatives of the municipalities of the State into a closer relation, which will ultimately result in their mutual profit.

I also repeat, Mr. President, that all of the delegates highly appreciate this dual and cordial welcome which they have received from the City of Berkeley and from the University of California. I thank you. (Applause)

THE PRESIDENT. Next upon the program today is the reading of the report of our Secretary, Mr. H. A. Mason. Mr. Mason will now present it to the convention. (Applause)

REPORT OF SECRETARY

Report of Secretary, League of California Municipalities.

To the Members of the League of California Municipalities:

The work of the Secretary's office during the past year has been much the same as heretofore.

The volume of correspondence handled by the office is constantly increasing and in addition to inquiries from the state cities we are frequently requested to furnish information to cities and organizations of other states and countries.

The efficiency of our organization is attracting the attention of similar organizations of the other states, which is extremely gratifying. The National Municipal League, at its Los Angeles meeting last July invited us to submit a paper descriptive of our organization and a recital of its accomplishments. This League has been alluded to as model of its kind.

Answering all of the numerous inquiries that come to us is no small matter, as sometimes considerable research is necessary to furnish the information desired. We are seeking now to secure greater uniformity in our municipal laws. For example, an ordinance establishing fire limits and regulating the construction of buildings has been prepared and sent to the small towns interested in this matter. Next year we hope to prepare a standard form for the assessment and collection of taxes. There is much work to be done in the standardization of certain specifications and the systematizing of the matter of the purchase of supplies.

We have tried to make the magazine valuable and interesting and have ambitious plans for the future which we hope eventually to realize.

We are trying to establish co-operative relations between officials and those who furnish supplies to the municipalities, a co-operation based on a square deal in the open. The time for petty graft is nearly at an end and we should endeavor to impress upon those who furnish goods to our cities that it is unnecessary for them to practice corruption and to show to our officials that any departure from the straight path of public duty is a matter of easy and sure detection.

The following new members have enrolled during the year:

Hemet, Concord, Monrovia, Fuller-

ton, Healdsburg, Huntington Beach, Exeter, Glendora, Dunsmuir, Corning, Inglewood. Marysville. Lordsburg, Maricopa, Dixon, Larkspur.

Los Angeles and Paso Robles have renewed their membership. The total number to date is 147.

Occupying as we do a central position, commanding a comprehensive view of the activities of all of the municipalities surrounding us, we are enabled to discuss the progress that is being made and the manifest tendencies to develop along certain lines.

In matters of administration there is being developed a marked tendency to select for the administration of affairs men of particular fitness to perform their allotted tasks, men of previous training and experience who are able to bring to bear in public service a knowledge that produces the highest results. We are beginning to inquire as to the reason for the high effectiveness shown in the administration of European municipalities and are asking ourselves the question: "Will it not pay us to copy their methods?" And the time is at hand when we may do so. We have accomplished many municipal reforms, have banished partisan politics, obliterated the old spoils systems, introduced merit system, reformed our election laws, shortened our ballots, enlarged the suffrage, provided for more democracy by adopting direct legislation.

We are now studying the problem of efficiency and broadening the activities of our cities. "Public Welfare" has been chosen as the term broadly expressing the purposes of municipal government and within the definition of the term we find that social betterment is as important as is the improvement of streets or the operation of a public utility.

In this enlarged view we can see our

future work and enter into it with a zeal that promises magnificent results and of lasting benefits to mankind.

Herewith is a report of the financial transactions from date of last report:

RECEIPTS.

Balance on hand Oct. 20, 1911.....	\$ 403.51
Received on account of dues.....	2510.00
Miscellaneous	1.50
Sale of proceedings	415.00

Total\$3329.01

EXPENSES

Salary Sec'y 11 months.....	\$1650.00
E. J. Mott, Reporting Convention....	248.00
Expenses at Santa Barbara.....	40.30

Paid for Typewriter	\$0.00
Rent 11 months @ \$12.50.....	137.50
Expenses H. A. Mason, Los Angeles	34.50
To Contribution Tax Reform.....	50.00
Stationery and Incidentals	368.28
Exchange of Warrants	3.20

Total	\$2571.78
Balance Cash on hand	757.23
	<hr/> \$3329.01

LIABILITIES

Due H. A. Mason, \$30, check drawn	
Rincon Publishing Co., \$575, check drawn.	
Respectfully submitted,	
H. A. MASON,	
Secretary.	

REPORT OF CITIES

That is my report, Mr. President, and I presume it is proper to refer it to the department of Auditors for action.

THE PRESIDENT. If there is no objection, the report of our Secretary will be referred to the department of Auditors. Hearing none, such will be the order. Have you anything further, Mr. Secretary?

THE SECRETARY. There are some few announcements that I would like to make, Mr. President. First is that all delegates should register at the Hearst Mining Building, the headquarters over there, next to the tent. I have also to announce with regret that the meeting for tomorrow night, which was to be addressed by Judge Clayton Herrington, will have to be dispensed with. Judge Herrington, I was told this morning, is very ill, so much so that he is now in the hospital. The announcement came to us so late that it was impossible to rearrange the program and make any substitution for tomorrow evening's program. We will try to make an announcement tomorrow, if we can find anything

for the evening. As part of the program, also, we have announced that any representative of any municipality, who had some special question that he wanted to ask, should put it in writing, and then it will be put in our question box. We haven't any box, but if you will just write it out and hand it to the Secretary or Assistant Secretary, it will be referred to the proper department or to the general body for discussion and consideration. Another thing is that it is desired to take the photograph of the delegates at 1:30 o'clock tomorrow. I think Mayor Wilson has an announcement or more that he would like to make.

THE PRESIDENT. We will hear from Mayor Wilson.

MAYOR WILSON. Mr. President, I wish to announce that an informal reception will be tendered the delegates this evening by the City officials, members of the civic bodies of Berkeley, and the President and officers of the University. This reception will be given in the Mining Building which has also been pointed out to you, at eight o'clock. I

might also say that the Secretary omitted to mention that badges will be provided for the delegates by the Secretary. He will direct you where they are, on the second floor of the Mining Building.

THE PRESIDENT. The chair will announce as the Committee on President's Address, from the general body, Mr. William J. Locke of Alameda; W. R. Andrews of San Diego from the Department of Attorneys; Mr. J. J. Jessup, of Berkeley, from the Department of Engineers, Mr. D. D. Kellogg, of Pasadena, from the Department of Clerks, Auditors and Assessors, and Mr. Charles A. Murdock, of the San Francisco Board of Supervisors.

The next number on our program for this afternoon was to be The Greatest Municipal Achievement of the Municipalities Present, Since the Last Meeting. This was to be answered by roll call. As each city was called, it was expected that the representative would, in a brief statement of course, show something that has been accomplished in his city in the past year. I think you will find that of great interest. But, as there are so few of the regular delegates here this afternoon, and a very much greater attendance will doubtless be on hand tomorrow and the next day, it is suggested that we defer this for the present. The only appropriate time that the chair can see would be the time set apart tomorrow night for Judge Herrington, and which, as just announced, he will be unable to fill. I would like to hear from the members of the convention as to what we shall do, as to whether we shall dispense with the roll call now and take it up tomorrow night, or what is the best plan. Mr. Locke, have you any thought upon the subject?

THE ASSISTANT SECRETARY. Mr. Chairman, I have the list of cities

that have delegates present and that have registered so far, and I had understood Mr. Mason's idea to be that it would probably be better, in view of the fact that we have nothing else on our program for this afternoon, to call upon those representatives of cities who have registered, and hear from them. If it is desired, I will call the list that I have here.

THE PRESIDENT. Very well. If there is no objection, the roll of cities will be called, and, as the names are called, the representatives from each city or municipality has the floor to explain in brief the most important feature in their city's history during the past year.



The Most Important Improvement of the Past Year—Roll Call of Cities.

AZUSA. FRED L. CLARK. Our most important work during the year has been constructing sidewalks and curbs. We have put down a great many cement sidewalks and curbs, and have also finished up about four miles of street in oil macadam. We intend to push the matter of sidewalk construction during the coming year, until we have all of the principal residence streets of our city in cement sidewalks.

BURBANK. F. E. CRAIG. We have only been a city a year and two months, and therefore are hardly in a position to report any important thing. We have, however, started upon our street work, and have sold our electric light franchise and gas plant franchise, and are thoroughly organized, so that from now on we are ready to do business.

COALINGA. W. R. ODOM. Coalinga has, during the past year, com-

pleted \$40,000 worth of sewer extensions, paved some twenty-two or twenty-three blocks of streets at an expenditure of \$125,000, and we are still hard at work in many directions. We will have a better report next year.

ETNA. E. W. BATHURST, M. D. Ours is a little city in Siskiyou county in the northern part of the State. We have completed this year an arrangement for a good sewer system. In addition to that, we have made many general improvements.

FRESNO. C. P. JENSEN. Fresno, during the past year, has provided the money to build an auditorium at a cost of about \$70,000, which will seat about five or six thousand people. It will be called the Rowell Auditorium, in memory of our late Mayor, Chester Rowell. Some day we hope to have the League of California Municipalities meet in that Auditorium.

GLENDALE. ED. M. LYNCH. The most important thing that Glendale has done during the past year has been cutting down electric light rates three years ago Glendale voted bonds upon the question, and they have just about gotten them perfected at this time. We had a meter charge of 15 cents a kilowatt hour, and we were unable to get more than one quarter of the town lighted. Our minimum was a dollar and a half. We have now succeeded in getting an eight-cent rate, and we hope to get down to the seven cent rate soon, and a seventy-five cent minimum. Moreover, we have electric lights all over the city, and the plant is absolutely on a paying basis. We have street lights for every three hundred feet in the town. We are doing about \$250,000 worth of street work at the present time, and are going to put before our people the proposition of the acquisition of a municipal water plant.

It will be voted upon during the coming month. We are also going to vote bonds for greater fire protection.

GILROY. W. T. FITZGERALD. Gilroy is one of the old towns, and is quite rich in experience. Gilroy was one of the original cities to start out into municipal ownership. She owns the gas works and electric light plant and the water system and all the public utilities. I think the greatest thing to be recorded during the year is the perfection of plans for paving our streets, and that work is just about to be undertaken very extensively. Some \$40,000 or \$50,000 will be expended upon that work within the next two or three months.

KINGSBURG. J. W. McINTYRE. Our greatest achievement is the completion of a water system costing us \$26,000. We have also opened about ten blocks of streets in the central portion of town.

LIVERMORE. P. M. O'DONNELL. In Livermore we have many things, but I suppose you want to know one in particular. The most important thing that Livermore has done in the last year is to organize a Woman's Improvement Club.

LONG BEACH. J. H. PEARCE. We have so many great things in Long Beach that I hardly know which to mention first. There are so many large problems before us that the great difficulty is to hold the people back, because they want to go too fast. They are contemplating voting \$3,000,000 for the building of a horseshoe pier extending out into the ocean. \$25,000 is being spent in the repair and renewing of the substructure of the present pier, which cost \$100,000. We are putting in miles of concrete paving. We have about sixteen miles of paved streets now, with a population of 24,000 people. Our fire

protection is up to the standard, and we have the latest equipment. We have just opened our port to commerce, and for passenger vessels, so that we are now a commercial as well as a winter and summer tourist city.

MONTEREY. F. A. LANG. I cannot say that we have anything remarkable to report at this meeting. Perhaps the best thing we have accomplished lately is the installation of a septic tank for the purification of our sewerage. It has only recently been installed, and has not been used long enough to test it. We are improving our streets right along. After this meeting adjourns, when we will no doubt have gotten some desired information, we are going to go on with further street improvements.

HANFORD. CHAS. H. COE. We are to have a bond election the coming month under which we will undoubtedly bond ourselves for \$110,000, \$90,000 for sewer extensions and \$20,000 for a power system.

OXNARD. G. R. BELLAH. We have recently voted \$130,000 in bonds for a water and light system, but unfortunately we are having the water power company people to fight. So we need a good deal of assistance from the city attorneys here to help us out. •

PACIFIC GROVE. The biggest thing undertaken by the City of Pacific Grove the past year was the construction of a combined City Hall and Fire House, costing \$11,500, and the construction of storm sewers costing \$51,247. This was accomplished through a \$72,000 bond issue.

PALO ALTO. N. E. MALCOLM. I have been City Attorney for Palo Alto for ten years past, and yet this is the first convention of the League that I have attended, and I apologize for it at the outset. It is hard for me to tell you

what the greatest achievement in the City of Palo Alto has been during the past year, because we have been achieving all the time. I think perhaps the greatest was the lessening of our tax rate and thereby lessening the amount which we take from the pockets of the taxpayers. We have in Palo Alto one of the best municipally owned water and lighting plants in the State. We have succeeded not only in adding to our plant by some \$50,000 worth of improvements, adding to their efficiency, but we have also, by strict accounting and conduct of municipal affairs kept our tax rate down to 95c on the \$100. We have reduced our water rate from 20c per thousand gallons to 12c per thousand gallons. We have also reduced our electric lighting rates in the night time from 10c per kilowatt hour to 7 1-2c a kilowatt hour, and our power current for both lighting and heating in the daytime, and for manufacturing purposes, to 3c a kilowatt hour. And yet the municipal electric plant is able to take care of its operating expenses and the bonded indebtedness as well, and to lay aside something for depreciation.

REDLANDS. C. H. CLOCK. During the last year we have completed an \$80,000 playground park, fitted out with a swimming pool and complete in every particular. Last June we voted \$600,000 for a municipal water plant, the bond issue carrying five to one. We have sold the bonds within the past month at a premium of 4 1-2 per cent and by the first of January the city will take over the domestic plant which we bought out and start in business for ourselves. We also pride ourselves on being a flyless town—We think we are the first town in California in that particular.

SAN DIEGO. CAPT. J. L. SEHON. We are like the gentleman from Long

Beach, except that, instead of contemplating it, we are doing it—spending \$1,000,000 on harbor improvements. We are making general progress in every direction and going very rapidly. One of our improvements is the finest, not the largest, theatre in the world.

SAN FRANCISCO. PERCY V. LONG.

For a moment I had begun to fear I had gotten into a real estate dealers' meeting, instead of a convention of this League. But I felt re-assured when I looked a second time and saw the President. Probably San Francisco's greatest municipal achievement during the past year was a change of administration. For our municipal year only commenced on the 8th of January, and one achievement after another has crowded along so fast that it is extremely hard to particularize. I think probably the matter of providing for and securing a civic center, and the steps already taken in that direction, constitute the principal municipal achievement of the year for San Francisco. On the new administration assuming power, the proposition of bonds and securing a suitable tract of land for the erection of a City Hall and other civic center buildings was taken up, and on the 28th of March that matter was submitted to the voters of San Francisco, and, by vote of twenty to one, the voters decided to bond the city for \$8,800,000 for the purpose of erecting a City Hall upon land adjacent to the old site, \$4,000,000 of that amount to be expended upon the City Hall, probably \$300,000 more in furnishing the City Hall, and \$4,500,000 for the land, five blocks to be secured west of the old City Hall site. The city has already purchased about a million and a half dollars' worth of these lands. One of the blocks is the old Mechanics Institute site, upon which the Panama-Pacific Exposition is going to erect a

\$1,000,000 auditorium and give it to the city at the close of the Exposition. The very day that the vote for the bonds was canvassed, and the result definitely known, condemnation proceedings were begun for the lands, and a board of consulting architects announced a competition of plans for a city hall. The successful design was accepted on the 10th day of July, out of sixteen designs submitted competitively and plans are now under way, so that, by the middle of January, the cornerstone will be laid and the foundation work well under way. When the plan is finally perfected, the old City Hall site will be put into shape; a musical association of San Francisco is engaged in raising \$800,000 for the purpose of building a municipal auditorium on one portion of the site. A new public library building, at a cost of a million dollars, will be erected upon the site also. So we feel that, when the first year is rounded out, San Francisco will have made probably the greatest step in advance in its history.

SANTA BARBARA. ALFRED DAVIS.

Our biggest achievement of the year was in buying out the opposition water company (the Santa Barbara Water Company), for \$150,000, payments to be made semi-annually for fifteen years—\$10,000 a year. We took the full receipts for the water sold by that company, and the first six months came to more than what we had to pay on the first installment, and it is assumed that it will continue and increase so that virtually we will have the plant for nothing at the end of fifteen years. We have laid several miles of pavement during the year. When I left, they had just let the contract for \$35,000 worth of bridges. We are about to construct a main artery to meet with the state highway coming from Goleta, and have

voted \$29,000 in bonds for that purpose.

SANTA MONICA. H. L. BRICE.

I have been at a loss to determine what our greatest achievement is for the last year, but I will briefly enumerate some of the things we have done. We voted \$350,000 in bonds for the erection of a Polytechnic High School and beautifying the grounds, and also the improvement of another school building. The subject of better fire protection has been pretty forcibly presented to us recently, as no doubt all of you are aware of the great catastrophe that recently wiped out the business district. As a consequence we have purchased a combination hose and chemical truck, and are now securing estimates on laying salt water mains and perfecting our cisterns. We have also extended our fire limits, to prevent a recurrence of the great disaster. In the last year we have paved a great many streets which, when completed will amount to about thirty miles, costing approximately \$500,000. We are extending our sewer system. And another important thing—we are drafting a commission form of charter, to be submitted to the people in the near future. Last, but not least, we are remodeling and enlarging our city hall and city jail, making them sanitary and modern.

SANTA CRUZ. MAYOR STONE.

I understand that we are to tell the biggest thing done since the last convention. That is rather a difficult thing to answer in a small city like ours where we do nothing very great. However, I will say that we have established a corporation yard, where all the city personal property is kept, of a kind requiring storage, and all the city purchasing is done; we have remodeled and rebuilt the city hall; we have also built a city prison and purchased a motor-driven fire apparatus for the first time. The

largest thing which we have started to do which is not completed is a very extensive street opening proposition, which has gone to the point where the report is accepted. Whether it will go much further, or not, remains to be seen. Those are the things which have been done in my little city during the past year.

SANTA MARIA. C. L. PREISKER.

The most important thing we have done is the completion of a \$75,000 sewer system, which is going to be one of the most complete sewer systems in the State. We have had an Imhoff septic tank installed, and I think when the work is all completed, it will be as good as can be found anywhere. We have placed our own street lights over a considerable portion of the city, and if it is considered an achievement to reduce the rates charged by public service corporations, I may say that we have succeeded in getting our gas rates reduced fifty cents. The city has purchased a motor-driven fire-fighting apparatus, and we are figuring on building about two miles of paved streets. The State highway along the coast will pass right through the center of town. Of course, we would like to have the State build it through the town, but they said they could not do it, so we are going to take care of that within the next six months, I believe. I think the highway will be constructed up to our borders within that time, and the city will be bound, in laying out the highways in the town, to see to it that the town highways are not poorer in quality than the highways outside of the town limits. I might say that Santa Maria has no city jail—we don't need any.

SANTA ANA. MAYOR EY. We have this year started a reservoir for water storage containing eight and a half million gallons. Within six weeks

from now, we will have completed what you might call an outfall sewer, at a cost of from \$125,000 to \$150,000, or rather that is its value, but it does not cost us a cent. It reaches from Santa Ana to the ocean. How was it done? We leased our sewer farm for seven years to the sugar factory, and we make them pay us the rent in advance, and construct the sewer pipe for four miles to connect with the sugar company's pipe line to the ocean. We have also procured the right of way for the pipe line from the sugar company's land to the ocean, and have given the sugar company a right to that. Hence we get an outfall sewer twelve miles in length without any outlay, which is to the credit to the men composing our City Council at this time. We have also voted bonds, and the year before last adopted a plan for a \$225,000 technical high school. Those are some of our achievements.

SIERRA MADRE. C. W. JONES. Probably the most important thing that Sierra Madre has done the past year is the finishing of twelve miles of paved streets, and the passage of an ordinance against weeds. We now have a weedless city. All the vacant blocks are cleaned. Another important thing we have done is voting \$70,000 for the acquisition of a water plant, and we have brought condemnation proceedings to acquire the entire right as against the estate of Lucky Baldwin, to the water that runs through his lands.

SAN BERNARDINO. S. G. BATCHELOR. I don't know that we have made any special improvement, but we are keeping stride with the surrounding country and all the cities in California, with improved streets and sewers, having built some four miles last year, making about eighteen miles in all of paved streets. We are contemplating about

\$90,000 extension in sewers. We are contemplating also the erection of a \$75,000 city hall. We haven't any at present. We have taken up the gas question in the past year, and it is still under consideration. We are trying to reduce the gas rate for our people. We have installed a \$6,000 chemical fire fighting wagon, with two additional automobile trucks, and we have the verbal promise from the underwriters that they will reduce our fire insurance rates 33 1-3 per cent—I think perhaps that is the biggest thing we have accomplished during the year.

TULARE. C. L. SMITH. The only thing that we have done in Tulare the last year was done last Tuesday, when we voted \$110,000 of bonds, \$100,000 for a municipal water works and \$8,000 for fire apparatus, and \$2,000 for an alarm system.

WILLITS. C. H. GOLDBERG. Willits not owning any of its municipal plants at the present time, and being in the grasp of a private corporation, I feel that the best achievement we have made in the last year has been in turning over the control of rate-fixing and the general control of public utilities to what is known commonly as the Railroad Commission, or, more properly speaking, the Public Service Commission of the State of California. We voted on the proposition on the 16th day of last June, and we have already felt some pretty good results on account of it. There are perhaps many other things that we have done that would interest you, but I think that is our "one best," and that is what the program seems to call for.

ALHAMBRA. SLOAN PITZER. Alhambra has voted bonds to the extent of \$173,000 within the past three weeks, \$50,000 for a city hall, \$50,000 for a

library, \$31,000 for fire protection, \$10,000 for an incinerator, and the balance for bridges and culverts.

BERKELEY. MAYOR WILSON. We have the petitions in the City Hall today, which are to be placed in the hands of the supervisors of the County of Alameda and corresponding petitions from a group of seven cities, calling for an election for the establishment of a municipal system for this district, covering the cities including Albany, Emeryville, Piedmont, Berkeley, Oakland, Alameda and San Leandro. Since our last meeting, we have sent our city engineer over the country studying the question of incineration, and had it not been for the meeting of this League of California Municipalities, the plans would have been adopted ere this. If there are any of the delegates here who are interested in the question of incineration, I am sure that Mr. Jessup will be glad to show you the plans and specifications which he has worked out in considerable detail. During the past year we have added two more splendid pieces of fire equipment, auto drawn, and have let a contract for a police patrol to be added to our police equipment. We are now calling for bids for \$5,000 extension to the police signal and alarm system, making a perfect system for the whole city of Berkeley. I might add, Mr. Chairman, that we regard one of the greatest achievements of the year as securing the presence of this delegation from the various cities of the League of California Municipalities.

COLTON. P. H. REED. The greatest achievement of Colton in the last year has been the paving of our streets under the Improvement Act of 1911. Prior to that we had finished up a \$65,000 sewer system, and have something like 800 connections made to it, leaving only 60 yet to be made. We have passed a health

ordinance and had before that organized a health department and appointed a health officer. So we expect to have a thoroughly sanitary city. Our streets have been steadily improved during the last year, something like \$50,000 being spent in improvements of one kind or another. We have a water system which belongs to the city, and likewise a street lighting system.

BURLINGAME. AUGUST BERG. We have started upon a \$200,000 street improvement in our city and have also started \$75,000 worth of sidewalk and curbing work. We have called an election for \$175,000 bonds for a municipal water plant. So far we haven't a dollar of bonds in Burlingame, the reason being that they have voted a school house down four times there, which means that we still have a temporary school house. But we have an election about every two months for a school house, and we think in the end we will wear them out and get it.

REDWOOD CITY. GEO. A. MERRILL. Instead of speaking of anything that has happened to Redwood City during the last year in the way of expenditures of money I prefer to speak upon the thing which I think has been beneficial to us and which will be beneficial for this body to know, because it is the thing from which we have derived the greatest benefit for the least expenditure of money. Probably many of you know that Redwood City owns its own water system, that is, its own water distributing system. We also own our street lighting system, owning the poles and wires and lamps and buying the current. Up to two and a half years ago, our lamps were arc lamps. Two years ago last spring, I suggested to the board that we try an experiment of lighting the streets with Tungsten lamps. There was some doubt about it, because the

electric light people warned us that the Tungsten filaments would not stand in the streets, unless we went to the expense of making over the entire system to a system that used what they call Buff's transformers. We began the experiment by taking out one arc lamp and putting in place of it five one-hundred watt Tungsten lamps, using the same transformer that we used for the arc lamps. Where the arc lamp had lighted a single street crossing, we put five Tungsten lamps on every third pole and in that way we lighted a quarter of a mile of streets with one transformer. Several of the lamps that were put in there two and a half years ago are there still, not having worn out, disproving the claim of the electric light company that we would have to make over our system. The result of the experiment has been that we have taken out every arc lamp in the municipality. We get at least three times the illumination and I think four times the illumination for the expenditure of current. Furthermore, where we used to run our arc lights upon a basis of so much per month, we now run our Tungsten lamps by buying the current just as you buy it in your house, and those lights are turned on and off by our night watchman as we may need them, and we pay meter rates. We invite bids for the current and we buy at wholesale at our switchboard. The result is that we get at least three times the illumination, we run twice as many hours as we did before, and our bill is about 40 per cent of what it used to be. I think that is the greatest achievement of Redwood City during the past year, and it is instructive to note from it that you do not have to go to any great expense to make over your arc system — you can take out your arc lamps and put your Tungsten lamps right on the

same transformers and get those results with very little expenditure of money.

HUNTINGTON BEACH. C. E. LAVERING. With an assessed value of only a million dollars, we last year voted \$70,000 for a great pleasure pier. At the present time they are making plans for a gas plant, and we hope to have it before next year.

NEWPORT BEACH. ALBERT HERMES. We are perhaps the smallest city in California, having a permanent population of only about 600 inhabitants, though in the summer time, as a beach resort, our population runs up to three or four thousand. We own our own water system, we have a school house costing us \$31,000, we have bought a city hall, and improved our streets greatly. But the greatest achievement of last year is the surveying of Newport bay for a harbor. We are going to sell \$100,000 of bonds to put in the jetties, and the government is going to aid us with another \$100,000.

SONOMA. M. E. CUMMINGS. We have completed a \$20,000 sewer system, and we have a library building for which Mr. Carnegie gave us \$6,000. We have put in about four blocks of concrete sidewalk and curbs and gutters, and are contemplating doing a good deal of street work during the next year.

WHITTIER. O. W. MAULSBY. The greatest achievement of Whittier in the past year has been the joining of our streets with the Los Angeles system of good roads. We are now building 150 miles of lighted way to reach all the way through the San Gabriel Valley as far as Long Beach; that of course, is being done by the county.

RICHMOND. DR. BLAKE. As health officer, not anticipating a matter of this kind, you might expect me to re-

fer to the killing off of flies or mosquitoes as more important than building roads. But we have built a \$60,000 school house in Richmond, and we have bought two \$6,000 fire trucks, one of them already in operation and the other ordered; we have also completed plans for a municipal water system. Perhaps the greatest achievement is the completion of plans for a \$3,000,000 Richmond inner harbor.

POMONA. **C. W. GUERIN.** I think one of the greatest things we have done is to definitely determine that we would never let any convention of this League go by without having a full representation, and acting under that, we have five from Pomona present today. During the last year we have built more than two miles of standard pavements, something like three and a half miles of macadam road, more than one mile of sewers with laterals; we have sidewalked and curbed a great deal more and have spent considerable money upon our parks, with the result that we now have the reputation of being the most beautifully parked city in Southern California. An addition to the public library has been made at an expense of \$10,000.

PASADENA. **D. D. KELLOGG.**

During the past year we have voted \$1,125,000 for municipal water works. During the year we won our telephone suit and were awarded \$31,000 damages. Then we voted \$60,000 for a garbage incinerator, that is now being erected. We united with the county to build a \$200,000 reinforced concrete bridge. We have expended over \$500,000 in street paving, conduits and sewers. The school district is spending \$450,000 for a polytechnic high school. The telephone suit to which I referred is the case of the City of Pomona vs. Sunset Telephone & Telegraph Company, in which Pasadena joined with Los Angeles, so to that extent it was our suit. The result of the suit is that the Supreme Court has held that Section 19 of Article XI, of the Constitution, as amended in October, 1911, gives California municipalities absolute control over their streets, a decision of far-reaching importance.

The general body then adjourned until the following day, Tuesday, September 24, 1912, at two o'clock, p. m.

THE PRESIDENT. We will next listen to a paper upon the subject of "Efficiency," by Charles A. Murdock, a member of the Board of Supervisors of San Francisco. (Aplause.)

EFFICIENCY

By Charles A Murdock, Supervisor of San Francisco

Each period of progress has its watchword, and it is indicative of substantial accomplishment when a new note becomes dominant.

We need all the encouragement we can get, and knowing how far short we still are of absolute honesty and integrity it is gratifying to be assured by high authority that the percentage of defalcations in public office which in the

days of Washington reached four percent has fallen to one-thousandth of one percent. These days are not degenerate.

It has been a long struggle for even comparative honesty but positive honesty is but one of the contributory factors of good government. There must be capacity, energy and a high purpose, and there must be available, technical knowl-

edge and training—all supplemented by good common sense. The American people have been so engrossed in results that means and cost have counted little, but a new virtue is being forced upon them, and a new era is at hand. The enormous increase in expenditure demanded by public improvements and by increased consideration for human welfare,—health, education, recreation, good roads, the protection of the young and the care of the suffering, pressing upon a fixed limit of income from taxation, constitutes a force compelling not only honesty but wise economy and a degree of efficiency that shall reduce waste and conserve the largest possible percentage of human energy and power.

Analogy is often helpful. In the ordinary steam engine but four percent of the heat was converted into power. The compound engine enabled six percent to be effectively used, and in large, well devised plants a maximum of twelve percent was reached. But after 20 years of development, the Diesel Oil-burning engine utilizes fully 33 percent of the heat in actual power, an increase of 825 per cent in actual efficiency.

The problem now presented is how shall we modify the municipal engine that the percentage of human efficiency, individual and collective, may be increased? Can we Dieselize the escaping power?

Just what percentage of human efficiency, municipally employed, is attained today is impossible to estimate. This is perhaps fortunate for our comfortable endurance. If known it would probably be shockingly low. There are of course exceptions but there is at least a tendency on the part of employees to render the minimum of service for the maximum of pay.

An incident in a civil service exami-

nation well illustrates this. Applicants for the list of pavers were being questioned by a well-known contractor who had volunteered his services. Of a strapping Irishman he asked: "How many square feet of paving do you consider a fair day's work?" With a knowing smile the applicant responded with the query: "Do you mean for the City, sir, or for yourself?" He was running no chances. If he didn't pass he might be wanting a private job. Clerks have been known to call down a beginner who kept the pace he had been accustomed to and even good clerks grow very expert in nursing a job when work is slack. Appointees made with regard to political services performed expect to do as little as possible in the way of real work in the future, and Civil Service appointees are quite apt to fall back on their security, and with no inducement for promotion do nothing to deserve it. The movement for better conditions has been interesting, and on the whole encouraging. At first the consideration of economy seemed to take precedence, and bureaus of Economy were formed. Whether it was found that the word economy had been damaged by over-association with its restricted meaning, or that the emphasis was placed on the saving, which presupposes cutting down, and was, therefore, unpopular, and aroused antagonism is not clear, but the tendency seems to be to drop the word and include the idea in Efficiency. Surely economy that impairs or retards efficiency is false economy. We are too apt to think of economy as holding back, as narrow frugality and modified parsimony. Economy is wise expenditure, prudent management. It ought to be held as a positive virtue of which no one ever need feel ashamed. But efficiency holds its substance and much more. It

is the final test. It has to do with results and it rests on the scientific basis that we so like to feel beneath us. It has its allies in bureaus of municipal research that ascertain and classify facts, and in budget exhibits that present in concrete form an illustration of the amount and method and value of municipal expenditure. It is reported that the budget exhibit has practically stopped New York's average annual budget increase of \$6,000,000. The history of Efficiency organization is interesting and instructive. At first the effort of introducing more effective methods in municipal government was made by privately financed bureaus under control of commercial organizations. In 1910 Milwaukee established a Municipal Bureau which sought to reorganize each department of the city government with a view of securing the highest degree of efficiency possible with the expenditure of the funds available under the budget appropriation, through eliminating waste and establishing high standards of individual efficiency. For 18 months, with the co-operation of various State and civic organizations and the assistance of able experts it made many many comprehensive studies of the various departments and of special municipal problems and conditions, publishing 17 bulletins summarizing results and conclusions. Many of these publications were of great value to other municipalities facing the same issues. With the change of administration in April the bureau, as formerly constituted, ceased to exist. It was organized for a special investigation and was not connected with any of the municipal departments. Its work is likely to be continued under some form of permanent organization especially established by ordinance. The first year's appropriation was \$5,000 for this Bu-

reau. In 1911, \$15,000 was allowed. The total expenditure was \$33,000, and it is estimated that if all its recommendations are carried out the saving will be \$150,000 a year.

Chicago has profited through efficiency work. The beginning was made in the City Council and subsequently the work was carried forward by the City Club. Its final distinctive contribution has been the association of efficiency, investigation and operation with the Civil Service Bureau of the city government. The Efficiency Division is under the control of the Civic Service Commission and the two form a most valuable adjunct to the Council. A complete classification of all positions has been made with uniform salaries for the same grade of service in every department. The standardization of positions and salaries and promotion from grade to grade on ascertained merit and after satisfactory experience, has given a new impetus to efficiency. The Civil Service is no longer confined to placing applicants but keeps record of service and controls the conduct of its appointees. For the first time in its history Chicago at its last budget fixing, followed in full the recommendation of the Efficiency Division of the Civil Service. It is becoming recognized that if we are to measure administrative results of any kind we must fix a standard by which the measurement can be made. It is not an arbitrary conclusion but a working basis reached after a careful consideration of all available facts. It is subject to amendment but while accepted it represents the best judgment that can be formed. By comparison with it the question of efficiency in any employee or of any material can be determined.

New York City standardized coal by heat capacity instead of by weight and

saved \$900,000 in seven years. The savings effected by standardization are surprising.

By standardizing the business methods of its bureau of water New York increased its water revenues \$2,000,000 a year. A saving of \$1,200,000 a year was also effected by standardizing quantity, quality and form of official reports, books and the City Record.

Philadelphia, by standardizing its method of taking the school census increased its portion of the State fund \$75,000. The United States Government finds that by standardizing envelopes used in the government service \$250,000 a year can be saved.

Standardization and resulting efficiency are not to be thought of as devices for reducing taxes, but for making possible added service and extending community welfare. If a city hospital standardized milk specifications and saved \$30,000, it could apply the money to the needs of patients for which no provision had been made.

If \$100,000 can be saved by standardizing supplies used by a Board of Public Works the saving can be expressed in terms of clean streets. The object of every city government should be to provide the maximum of service made possible by the annual tax budget, and the more efficiency is developed the greater will be the measure of service and the richer and better the community life.

So much, gentlemen, for efficiency in the abstract. I now want to give you a few concrete examples of its working out with us in San Francisco, for it seems to me that the best we carry back from these meetings is the knowledge and inspiration that we gain from what somebody else has done. If we exchange

experiences, we help one another.

Since I last faced some of you at Santa Barbara, an election has been held in San Francisco, as you are aware. The result has been, on the whole, very satisfactory. Five-eightieths of the last Board of Supervisors were by that election retained in office—a like fraction of the present Board are men who had served the city exceptionally well under previous administrations. Eight-eightieths of the membership had never before been tried, but they are well selected men and most of them of high capacity.

We found, then, for the new administration, a Board of fine material. We were at once impressed with the fact that one of the defects for many years in San Francisco had been the unequal division of the work devolving upon the Board. The committees were not properly constituted. Some of them had become dominant, and had very much more than their part of the work. Others were obsolete, meeting, if at all, but once a year. We had inherited a great deal that need to be corrected.

The elected members, about two months before they took office, met to prepare for their work, and, with the assistance of Mr. Mason, we subdivided what we considered to be the work of the city into, as nearly as possible, eighteen equal portions, and assigned the chairmanship of one committee to each Supervisor, each member serving also on two other committees. In other words, we had eighteen quite strong committees, whereby every ox in the Board could press against a bow and help draw the load.

Some of the committees were entirely new, duties having arisen that we felt ought to be assigned, while some of

the old committees were dropped because they were no longer useful. For instance, there was a time in San Francisco when the city had outside lands. But the Outside Lands Committee for the last ten years had been a joke, so much so that when something came up that was of no value, it was referred to that committee—which never had a meeting. We concluded that that committee must be put to work and so we made it a Committee on Lands and Tunnels. San Francisco has a great deal of school land that we know ought to be put to work or made into gardens, and proposed tunnels are of great importance. So that committee is now one of the strongest we have. Our Committee on Supplies had been concerned with only stationery and printing. We made of that a General Supplies Committee, into the charge of which was put the standardization purchase and distribution of all supplies. We have now a Committee on Public Welfare, looking out for things that had not previously been studied or cared for, and co-ordinating departments that had previously been neglected. We formed a Committee on Efficiency and Civil Service, although there was at first considerable opposition. Some members inquired why each department could not look out for its own efficiency, not realizing the advantage of specialized effort. But at last we persuaded them to make a trial.

The committee had no appropriation for six months, because the budget had been made the July before and we came in in January. But we concluded to begin and do what we could. Our first act was to send a letter to all the departments and county officers, inviting co-operation with us in our work and suggesting to them that it would be greatly preferable to us if they would of themselves institute plans for economy and

efficiency, without awaiting our suggestions, but offering to do anything we could to help them. We were fortunate in one respect and that illustrates what we believe can be accomplished in every other department. One of the members of the committee had been serving on the School Board and was greatly respected by the remaining members.

Knowing conditions there, he was able to draw up a revised schedule by which the office and shop force was reorganized, effecting a saving of about \$30,000 a year. The School Board adopted the schedule and it is now in effect. That illustrates what could be done when we knew the conditions. When the time comes that we know other departments as well as we knew that one, if we have the same co-operation we had there, the amount saved will be very large. We felt that the place to begin was at home, affecting small economies in the expenditures in the office of the Board of Supervisors. We found that we could reduce the cost of advertising about one-third merely by cutting out superfluous words and useless repetitions of unnecessary descriptions. This elimination aggregates in a year several thousand dollars.

Another saving had reference to the expenses in the fixing of water rates. It had been the custom from time immemorial to appropriate \$500 for the general purpose, \$250 of which had been used to prepare a book, to be filed with the County Recorder, containing a list of water users of the Spring Valley Water Company. That company makes an annual report to the city containing the information, from which the copy for the County Recorder had been made, and it occurred to us that they might make us a copy at the same time. They very gladly agreed, at an expense of \$25, which paid for the labor and the material, thus saving the considerable

amount which had therefore been paid out for again typewriting the voluminous report. Previously an expensive stenographer had been hired to report in full the rate hearings. We had good stenographers and there was no reason why they could not do the work, so we allowed them a little extra pay and saved the largest part of the \$250 heretofore expended.

We found that in the various city offices there was being used a lithographed letter head of the old City Hall, which at its best was something of an abomination and now has been wrecked and torn down. We had been in the habit of paying \$6.90 a thousand, in ten-thousand lots, for those letter heads. We got up a very simple form of printed letter head and found that we would require about 200,000 a year. We advertised for proposals and now pay for a neater heading \$1.60 a thousand—a very substantial saving. We saved wherever we could, and in the aggregate the amount is respectable.

We have had excellent co-operation on the part of the Supplies Committee. I am not at all certain but that it has saved the city more than has the Efficiency Committee. It has done splendid work in standardizing specifications. It called upon the merchants and asked them to assist in putting the specifications in a form that would induce them to bid, so they could rest assured there was nothing covered up and that everything was plain and clear. And when bids were opened especial care was taken in making the awards.

Through the Committee on Supplies we have advanced in our interpretation of the provision of the charter that requires that a contract shall be let to the "lowest responsible bidder." For illustration woolen blankets are supposed to contain 80 per cent of wool and we had

paid for them on that base, but 65 per cent was a liberal estimate of what we received. This year our specifications called for 80 per cent and we had the samples accompanying the bid analyzed, and awarded the contract to the bidder whose price was lowest on the percentage of wool, paying a trifle more for a thoroughly good blanket than we had before for a very poor one. We had everything capable of analysis analyzed. We spent some money in testing oils and paints and rejected adulterated samples of all kinds. Paint that we found to be bad, we didn't take because the price was low for if there is anything in the world that is dear at any price, it is a cheap paint. We, in each instance, considered quality and awarded contracts on our careful conclusions of actual value.

We reached a culmination in the matter of coal. We had two bids for coal, one at \$14.90 a ton and one at \$14.20. We sent that coal to the superintendent of the engines and told him to make a practical test of it. He took a certain quantity of each to show what its water evaporation power was. A certain quantity of the lower priced coal evaporated 2.5 pounds of water, while the same weight of the higher evaporated 6.3 pounds. So that by an added expenditure of 70 cents a ton, we got two and a half times the efficiency. We were taken before the grand jury by the lowest bidder, who said we were violating the charter. We considered, however, that in buying coal, there is something else besides its being black and hard that determines its value, and that we had the right to look into the matter, and that where we could get 2.52 per cent as much value by adding 5 per cent to the price, we were actually awarding the contract to the lowest bidder.

In the same way, we sent 500 pounds

of each submitted sample of flour to the Relief Home to see how many loaves of bread could be made from it. We found that flour submitted by the second lowest bidder made 40 loaves more than that of the lowest bidder. The weight was equal, but it was a stronger and better flour, and we awarded again according to actual value.

These are what we consider matters of efficiency. Another illustration is eggs. We found they had been putting in pullets eggs, and so we made a standard of weight. Now eggs must weigh so much per dozen or they are not eggs as we recognize them. There has been quite a saving in that line. The same plan was followed with butter. Deliveries are passed upon by the official appointed by the produce exchange, and during the specific time of year when fresh butter is available, we do not take any cold storage butter.

Perhaps the greatest gain we have found is in the substitution of motor-driven apparatus. Beginning with the lowest form, the motorcycle, we have a number of them in the Police Department, and we find one man can do as much work in one day as two men in two and a half days under the old way. We found the Bureau of Electricity was using a great many horses and buggies in making inspections. We bought a little runabout for \$525, and the first day of its use, instead of making 12 examinations, as he had done, the inspector using it made 30. It is plain that either an inspector can do more than twice as much work, or that half the inspectors can be dispensed with.

We had been paying \$545 a year for horse hire for each inspector, and, taking the small expense of running the runabout, you will see that we can afford to use it and throw it into the scrap heap at the end of the year and yet

effect a saving. As to gasoline, we found that we had been paying garages 20 and 25 cents a gallon for it, while we had a contract for it in bulk at 14 cents. We installed a tank at the City Hall and now save 30 per cent on all our gasoline. These are economics and matters of efficiency that are within the reach of every one of you.

We are going still further in the direction of motor-driven apparatus. A motor-driven chemical engine, tremendously increasing the efficiency of the apparatus in getting to a fire, its speed being far greater than that of horse-driven apparatus, while the expense of maintenance is about one-fourth.

The new apparatus eats nothing except when it is at work, and fires do not come very often in San Francisco now-a-days.

We find a similar saving all along the line with our motor apparatus. Our new motor-driven police patrol wagon does the work of three horse-driven vehicles, relieving four men and six horses. A motor-truck, taking oil to the Relief Home, makes three trips a day and puts four men and 12 horses out of use. So we find it well worth while to use motor apparatus wherever possible. Of course, we have to put it in a little at a time, because we haven't the money to do it all at once. But we know it is economical and works for efficiency, and it will be installed as fast as funds make possible.

Perhaps the largest saving we have made is in the creation of a new pay system. We had a very antiquated system of paying off our men, especially the per diem laborers, in the employ of the Board of Public Works. Under that system, separate demands were made on each fund from which they were paid and they often had five or six demands at the end of the month, and each one

of the demands had to be signed by a majority of the Board of Public Works. There had been no distinction in the charter as between a warrant and demand, but we managed to establish a difference and claimed that an official could make a demand for the money for those employed in his department, itemizing names and amounts, whereupon the auditor was authorized to draw a warrant on the treasurer in favor of each individual for the amount certified. Those warrants are delivered to the men on the job. Before, they had to leave their work and go down to the auditor's office and stand in line there and sign receipts for their warrants, four or five of them, and some of them could not find their names very readily. They were allowed from three hours to half a day every month to collect their pay. And it is conservatively estimated that at least a thousand dollars' worth of city time was thus wasted each month. Now the warrants are taken out by the heads of departments and given to the men, receipts being taken for them. These warrants are payable at any clearing house bank and so can be handed the grocer or other tradesman. We hope to arrange to pay laborers semi-monthly, cashing the warrants of those who prefer the money. The plan saves work for several of our departments, as well as the city's money in the time of its employees. So in every respect we find that "paying on the job" is a good plan. Like everything new, there has been opposition developed, but we expect to overcome it and convince all that it is a step in advance.

In the budget for the fiscal year we were allowed an appropriation of \$5000 for our work, and upon its becoming available, we organized a Bureau of Efficiency. There is a director, who has under him a trained efficiency engineer,

and they are both under the contract of the Civil Service Commission. Then there is a board consisting of the President of the Civil Service Commission, the Mayor and Auditor and the Chairman of the Efficiency Committee, to whom reports are made, and who advise in the interest of the work. This board is now engaged in making a complete and thorough survey of the most important department, the Board of Public Works, where the duties performed by each man will be taken into account and salaries adjusted with other departments, so that we may know all of the facts and make suggestions as to economy and efficiency through reorganization or otherwise.

We purpose going through every department of the city administrative government in that way before we get through. The information gained will be helpful to the Finance Committee when the budget is made up at the end of the year. We seek to effect the savings with all possible consideration of the individual. So far as possible we hope to provide for those whose services are dispensed with. Civil Service appointees returned to the list will fill new positions in order of their rank. There is much to be done but we propose keeping at it until the city and County of San Francisco is on an efficient, businesslike, common sense basis, in which employees will be getting well paid for what they do and have some inducement for doing well, account being kept of their record so that they may be advanced on merit without any regard to political claims or any consideration of influence.

That the city shall be honestly and efficiency managed from one end to the other is the aspiration and hope of the Efficiency Bureau. (Applause).

REPORT OF COMMITTEE ON PARTICIPATION IN PANAMA EXPOSITION

BEFORE THE MAIN BODY, AT CHEMISTRY HALL.

2 p. m., Wednesday, September 25, 1912.

The Convention was called to order by President Dodson.

THE PRESIDENT. The first matter to come before the League for discussion today is the report of the Committee on Participation in the Panama-Pacific Exposition. In the absence of Mayor Lange of Burlingame, Chairman of the committee, I will call upon Mayor Wilson of Berkeley, a member of the committee, to give the report of his committee.

MAYOR WILSON. Mr. Chairman and Fellow Delegates: Mayor Lange of Burlingame was the chairman of a special committee which was appointed to interview the chief of directors of the Panama-Pacific Exposition, to carry out the resolutions of this body made at the last session concerning a municipal exhibit and a social congress, which was proposed for the Panama-Pacific Exposition. I was also placed on that committee, and one or two others. But Mayor Lange and I alone interviewed Chief of Directors, Mr. Skiff. It has happened inside of the last hour that Mayor Lange has found it impossible to be present, and it has fallen to me to make a brief oral report to you of the year, and at the point to which we have arrived.

I regret very much that I have not got the final detail of the investigation with Mr. Skiff, and what I shall say must necessarily be incomplete and comparatively unsatisfactory. But it is the best that I can do under the circumstances.

Just to refresh our memories, I will say that at the last meeting of the League, at Santa Barbara, there was a proposition made and considered that we recommend a municipal exhibit to the Board of Directors of the Panama-Pacific Exposition Company, and the holding of an international social congress. A committee was appointed to carry out that work and report at this convention. We have been studying on this matter during the year that has passed, and we have devised various schemes and outlined various methods for the exhibit, and some general programs for a social congress. Inside of the last month we have been able to interview Mr. Skiff and present the matter to him, and I am glad to be able to report that he was very much pleased with the proposition that came to him from this League, and expressed his desire to cooperate with us and to enable our activities to dovetail into any of the work which was to be inaugurated by the Panama-Pacific Exposition. Mr. Skiff had a general proposal which he outlined to us of having one great central temple for congresses, social and ethical and municipal congresses. On each side of this greater temple, there were to be two wings, one wing for the exhibits of municipal and social institutions already established and in working order, and the other wing primarily for municipal exhibits from the cities of the world. Mr. Skiff said that they were in hopes that the federal government might undertake the organization of such a congress and such an exhibit, and a certain prominent official, whom I cannot mention at this time, was already considered

for the position of chief in charge of that kind of an exhibit. He requested us to continue our activities, and to be able to meet him and these other officials in a further conference upon this subject.

That is about the extent of the general report. There are some details which Mr. Lange has at his disposal. I understood at our last meeting that Mr. Lange would report that the present committee be continued or others be selected, if you so wished to continue the conference and arrangements with the Director of Exhibits of the Panama-Pacific Exposition.

Again I say I regret very much that this very limited report is all that I can afford you, but the matter was left in the hands of the Director of Exhibits, and, so far as the League is concerned, the chairman of the special committee was to make a full and complete report, and it is to be regretted that he cannot be here. But I want to say that everything promises to be of a very satisfactory character—if we can do our part of it. It was the idea of the committee that it would be better for us to have our activities dovetail into what the Exposition directorate had determined to and would determine to do, rather than to take the responsibility of organizing that great exhibit as a league. (Applause.)

THE PRESIDENT. Gentlemen, you have heard the report of the committee. What is your pleasure in connection with it? Do you desire to continue the same committee? It seems to the chair that would be an appropriate thing to do.

MR. SEHON. I move, Mr. Chairman, that the present committee be continued.

THE CHAIRMAN. It is moved that the present committee be continued. Is there any objection to that being the order?

MR. LONG. Mr. President, will this matter be taken up later on during the session? The reason I asked this: The League of American Municipalities, at its meeting in Los Angeles in July last, passed a resolution declaring it to be the sense of that body that a world's municipal congress be held when the Panama-Pacific Exposition was held, and pledging the support of that organization to this and kindred organizations in the matter of bringing about such a conference. I have forgotten the exact wording of the resolution, as Mr. Mason drew it and I introduced it. It was looking toward co-operation with all the bodies of that character throughout the country, in the hope of bringing about a world's municipal congress. It seems to me that we should, before our next session, have something more definite than what the present management of the Panama-Pacific Exposition seemed to be willing to give us, and if it is necessary for this organization to assume the burden, or to do so in co-operation with others, I think we should so act, so as to bring about such a gathering in San Francisco, if it be possible.

THE PRESIDENT. I will ask our secretary how the matter has been understood, if he can give us any further light on the matter.

THE SECRETARY. Mr. President, Mr. Long has stated the situation correctly. The status of the matter is this: As I understand it, Mr. Wolf, who made the proposition at Los Angeles, has been selected by the Exposition Company to take charge of the exhibition part of the work, and they have also selected a Director of Congresses in the person of Mr. Barr, of Stockton, who used to be superintendent of schools. We have had quite an extended interview with him, and he has assured us that the municipal congress will undoubtedly be held

and be one of the great features of the exposition. He says that very clearly, and we will be in complete harmony and accord with him and he with us on that proposition. So Mr. Wolf, as I was informed today, will leave Washington today or tomorrow and will be here in San Francisco soon. It will be too late for us to bring anything further before this convention, because we cannot proceed further without an interview with him. So the matter will have to be left with the committee, and then if we at any time want a general or a special meeting of the League itself, we could call the League together at any time.

MR. LONG. It seems to me, Mr. President, that if what Mr. Mason has stated here could be embodied in some sort of a report, so that we could have it in our proceedings and thus have something definite on our files at the next session of this League, rather than to have to trust to our memory as to what has been reported, it would be better I would suggest, if agreeable to Mayor Wilson, that in seconding the motion that was made to continue the committee, that the committee file with the secretary a written report, so that we can have it in our records, and have something definite to refer to at the next session of the League.

THE PRESIDENT. Is it a matter

that the executive committee might act upon?

THE SECRETARY. I assume the executive committee might, but of course the report has been made here in verbal form and will appear in the minutes just as completely as though it were written.

MAYOR WILSON. I think, Mr. Chairman, Mr. Lange will have such a report ready.

THE SECRETARY. And unquestionably the committee will from time to time make further report and recommendations which will be submitted to the various municipalities composing the League and published at length, so we can keep in touch with the matter as it progresses.

MR. LONG. My only object in introducing the discussion was to keep the matter alive.

THE SECRETARY. The committee will have that in view always.

THE PRESIDENT. As I understand the motion, it is that the committee be continued, with instructions to proceed as rapidly as possible and report to this session if it can be done.

MR. LONG. File a written report with the Secretary of the League.

The motion as thus amended was stated and unanimously approved.

THE PRESIDENT. The next number on our program is an address on the subject "The Purchase of Supplies" by Mr Adolph Koshland, Supervisor of San Francisco. Gentlemen, Mr. Koshland.

THE PURCHASE OF SUPPLIES

BY MR. ADOLPH KOSHLAND, SUPERVISOR OF SAN FRANCISCO

With the tendencies in our American communities toward a systematic and businesslike administration of the public affairs, there has developed a desire to place the purchase of supplies upon a business basis. The necessity of doing so in large cities is apparent when one contemplates the fact that New York, for instance, expends between 22 and 25

million dollars upon purchases: San Francisco, about three million dollars. But it is equally important that economy and care in the purchase of supplies be exercised in even the smallest communities, and whether it be butter and eggs, fire hose, basalt blocks, or coal, eternal vigilance is required.

Without desiring to introduce the first

person singular. I can best exemplify what I wish to say by some concrete examples of the brief period during which, as chairman of the supplies committee, I have been connected with the purchase of supplies for San Francisco.

I prefer to give these examples, because an academic paper simply advising what methods had best be pursued would not give the individual representative of a smaller community the opportunity to solve these principles for himself as well as he would with a concrete example before him. Each community presents its own problems, and you can measure those problems by a comparison with the problems which we have had to solve.

The charter provides that the Supervisors make annual contracts for the supplies needed, and that inspection be made by the Supervisors, and by the department receiving the goods or materials. A divided authority prevails as to contracts, inasmuch as a number of departments, such as the Fire, Park, Election, and School departments, are charged with the same duties. This may be contrary to the charter's intent, but it resulted in all sorts of methods of purchase by a multiple number of purchasing clerks or officials, and worst of all, in a lax inspection—generally none at all. We decided upon a centralization of the purchases and of inspection under the supervision of the new formed supplies committee. This must result in uniform prices for similar articles, which were formerly bought separately by various departments at widely varying prices; for instance, gasoline on one contract at 14c, and in another at 20c and 25c per gallon.

It was found that, in past years, many firms doing business with the city were unreliable, while many of the most reliable houses either refused to deal

with the city, or were outdone of the opportunity to do so. It was suspected that irregularities in the delivery of goods, or in the method of purchase were responsible for these conditions. A preliminary examination of the stores in the hospitals and prisons showed a peculiar state of affairs. Instead of the fresh butter and eggs contracted for, we found cold storage eggs and butter; 3 hams that were marked to weigh 39 pounds, and that had been received the day previous, were found by us to weigh only 34 pounds. Blankets that were bought as 80 per cent woolen were found to be greatly inferior. In some departments there were no scales to weigh goods received; store accounts were poorly kept, or not at all; potatoes bought as best grade were so that half of them had to be cut away in order to make them edible; partial repairs to wagons cost as much or more than new vehicles would have cost; the horses of the police department were shod and padded once each month, so that on account of the apparent needlessness of this operation of the bills generally showed that most of the horses were shod and padded on the last two days of the month.

We invited all the merchants of San Francisco, through the public press and through the medium of the commercial bodies, to a mass meeting on the floor of the Chamber of Commerce, and laid our problem before them. The city intended to deal fairly with the merchant: it must receive the article necessary to its functions; it assured prompt payment and impartial dealing. In return we demanded fair play from the merchants, full delivery as to quantity and quality, and honesty of intention in dealing with the city. We wanted to know why so many firms were not doing business with the city who were known to be

first hand dealers of probity. We suggested that possibly uncertainty in the wording of the specifications was responsible for it, and asked them to aid us in removing all ambiguity from our specifications for annual contracts. We asked the meat packers if three hams could lose 5 pounds by evaporation in one day; we asked the firm who had delivered the blankets what kind of blankets they had delivered instead of the 80 per cent woolen goods; they frankly acknowledged that they were only 65 per cent woolen, but that they saw nothing wrong in this, as the goods were apparently acceptable to the authorities and answered all requirements. We asked for the best method to buy coal and how to test it; we were told of the insufficiency of our specifications for street paving material, and found at once that here lay one of the causes of the frequent repairs that had become necessary in our thoroughfares. We also found that the description of many articles was so vague as to give the "insider" an opportunity to deliver inferior goods, who, when possessed of this knowledge, could underbid the responsible firm that intended the delivery of a first-class article.

This meeting led to a thorough mutual confidence, and resulted in the co-operation of all the merchants in a revision of specifications. We took each group or class of supplies and invited the dealers in this merchandise to open meetings for the purpose of receiving their suggestions, and to make the corresponding changes. Frequently there were differences of opinion among the dealers or manufacturers, but as a result of the meetings we succeeded in standardizing our specifications so that there could be little doubt as to what was desired, and that a rigid inspection would follow. While, formerly, the "in-

sider" did not have to make deliveries to outlying institutions, far from the business center, and the uninitiated who had probably not put up his initiation fee, had to make such deliveries, and consequently had to charge a higher price and lose the business, we arranged that all small packages would be called for. As a result we had 45 per cent more bidders, and among them the most reliable firms of merchants, some of whom had not dealt with the city in 10 or 12 years.

When the annual bids were opened, great care was exercised in the awards to make them absolutely just and equitable. Wherever prices of different bidders were alike we allowed them to decide by lot who should enter into contract with the city. Where samples had been submitted (or such goods of which samples were necessary) the competing merchants were given an opportunity to point out merits and defects. We asked for 65 per cent woolen blankets as the institutions had found them satisfactory. We had about 14 samples when the bids were opened; these sample blankets were tested chemically and found to range from 29 per cent to 75 per cent woolen. The merchant who had submitted the 29 per cent blanket as a 65 per cent blanket was a reliable firm, and had been duped by the manufacturer. We bought the 75 per cent blanket at a lower price than was asked for all the inferior samples.

Examples: Sand, automobile tires, automobiles, pencils, carbon paper, furniture, teams (hauling back) adding machines.

The specifications for sand, for instance, in previous years described minutely almost the spot of the State of California where the sand had to come from. So it was that only a favored bidder could get that contract. We

described sand in our new specifications according to its testing merits, as to the fineness of the grain, and the consistency of the sand. The result was that we bought our sand this year at 67 cents per ton as against \$1.25 per ton, and the minimum saving involved in this one item alone, as a result of throwing it open to competition, was the sum of \$10,000. In the buying of automobile tires, we have found that bills for automobile tires were \$79.70, and only one grade would we use. We threw it open to all bidders, and invited every merchant to come and submit his price on automobile tires, and we finally picked out a tire at \$42 and a fraction, on which we get a guaranty of 500 miles more than any other guaranty that was ever given us.

In the purchase of automobiles, where it had been the custom to expend \$5000 or \$6000 for a machine, we found we could get machines worth \$2000 to do the same work.

In the buying of pencils, we got the school department to co-operate with us. There were scores of different kinds of pencils bought. We standardized pencils, and reduced the number of pencil that we wanted for the city to about five different kinds, that could be used in the drawing department of the architect's office or the engineer's office as well as in the school department or in the clerical work of the city. New York city, by standardizing pencils, saved \$13,000 in one year.

In the specifications for carbon paper, we found, I think, there were close to one hundred different kinds of carbon paper, each by name, a proprietary brand, so that each merchant who had that particular proprietary brand would get positively an order for that brand. We cut out the proprietary brand everywhere, all through about fourteen

thousand items, and in carbon paper simply asked for three kinds, light weight, medium weight, and heavy weight. Therefore we bought it cheaper, because every man who manufactured carbon paper had a chance to bid on that item.

In the buying of furniture, the value of the furniture was gone into by a physical inspection. You can't buy furniture by getting a price on a piece of paper—you must see it.

The question of teams and teaming, which has not yet been quite solved, is an important item, and we had to go so far as to get an opinion of the city attorney as to whether teaming was supplies, and we have got the opinion that teaming and hauling are supplies. In fact, Franklin K. Lane had, in 1899, rendered such an opinion, but it had become obsolete, and the Board of Works, through political patronage, had done its teaming under a very irregular system. There were \$300,000 annually expended in teaming of material for the Board of Works in San Francisco. A close inspection showed that the teams were not working properly, not as they would be working for a private contractor, and the first change we made was, to see that the teams were at least put to use. The fact that the teams now hauling material in one direction come back bringing a load from that point or from near that point means a saving to the city of \$80,000 a year.

Last week we had a requisition for five electric adding machines for one of the offices of the city's department. They were to cost \$2000. Instead of buying them at once, we asked the director of efficiency to inspect that office and render a report as to the need of that office for new machines. We found that, instead of requiring an additional machine or additional ma-

chines, if the work were done according to the way it is done by private corporations, for instance, half of the machines then in use could be dispensed with. So we didn't buy the five machines.

Coal is now being purchased after a heat unit test. This led to a curious complaint to our Grand Jury from one of the disgruntled bidders of the old regime; for our charter provides that we buy from the "lowest responsible bidder," and we contracted to pay 60 cents per ton more than the lowest bidder's price. We could, however, submit to the Grand Jury the records of tests showing that the coal we purchased produced 6.14 pounds of steam per pound of coal, whereas the rejected coal produced less than 3 of steam per pound of coal, so that our coal was worth more than twice the value of the rejected coal, while it cost us only 60 cents per ton more. We found that kindling wood is, by a custom of the trade, delivered in short measure. We don't follow the custom of the trade, and buy a full delivery. We abolished the old system of shoeing horses, and of making repairs in favored shops. The horses are now being shod when they need it, and at the nearest reliable blacksmith's,—while repairs are contracted for after competitive tenders. The saving in horse shoeing and veterinary service amounts to over \$3000 per annum. Our saving in repairs to automobiles and teams is at about the rate of \$10,000 per annum.

Then we inaugurated a careful system of inspection. Last week we found that the butter and eggs at the Tuberculosis Hospital were below standard. We called on the inspector of the Dairy Produce Exchange for his test, and thus were able to substantiate the complaint. We are equally careful in purchases not provided for in annual contracts, buying only after exhaustive and careful tests,

and after an opportunity to all interests to figure on the business. At times we have to disregard the recommendations of departments, as we did in the purchase of motorcycles, when there were no records of tests furnished us to accompany the recommendation of the department. Independent tests as to speed and mechanical construction led to the purchase of a brand entirely disregarded in early recommendations.

Very curiously, one of the bidders, whose brand had been recommended by the Police Department, had his machines all ready at the railway station when we were ready to make our award. They were painted in the police colors and marked "S. F. P. D.," for San Francisco Police Department, and if it had not been for this fact and the fact that he reduced his price very materially, in fact, he had to reduce it down to cost, he never would have gotten rid of his machines.

One of the bidders for motorcycles talked to us after the recommendations of the Police Department had been made, and complained that he had not received fair consideration. We reopened the matter, called in representatives of the Police Department and all the other bidders, asked the Police Department for a record of test upon which they had made the recommendation for the purchase of certain brands. At their request we postponed the matter for another week, so as to give them time to furnish those records. They did not produce the records. We therefore made our own tests, and then bought the brand that had not been regarded at all in their recommendation—simply on a test of efficiency.

Briefly put, we have organized a purchasing department, presided over by the Supplies Committee of the Board of Supervisors, who must, under the char-

ter, make the purchases. A superintendent of supplies is in the charge of the clerical and inspection work,—he directs the standardization of requisitions and specifications, tests and experiments and investigations of new materials or supplies or brands, the accounting of stores in different departments, the centralization of purchase and of delivery, and the times of delivery and of inspection.

The counting of stores is very important. There is no other possible way of ascertaining if there is thrift or if there is extravagance in the use of supplies in large institutions. You will obtain by the counting of your stores in public institutions a record of consumption which you can compare with the records of the inmates in that institution. In that way, you will find by comparisons whether or not there is careful and economical administration.

We are now installing a system whereby a complete check of authorization of purchase, of delivery and inspection will be of record before any bill for supplies or materials will be audited.

As a result of these methods we find that the city is receiving the quantity and quality of goods which it purchases, and that it buys at the lowest possible prices—the annual saving can only be estimated, but it probably amounts to several hundred thousand dollars; and the reliable dealer knows that he will be fairly dealt with, while the crook does not care to deal with us. The wards of the city receive the best of supplies, and are made healthier and happier thereby; and efficiency is obtained in works which would otherwise suffer. And, not the least of good results, is the example of fair dealing, and of a business administration which benefits the mercantile community.



JOINT MEETING WITH THE STUDENT BODY AND FACULTY

PROFESSOR DAVID P. BARROWS. Mr. President, delegates to the League of California Municipalities, Students and friends of the University: President Wheeler was unable to be here this morning and he has asked me to preside for the purpose of presenting the distinguished gentleman who is to address us this morning, and to express for the University the satisfaction which all of us here feel that you gentlemen have consented to hold your meetings here in our midst, and because of the benefit and the encouragement of your presence. It is not merely a matter of the profits which those of us who have been enabled to attend certain meetings have perhaps derived from the reading

of the papers. It is something of more significance to us than this. It is the clear stamp of approval upon expert service which you, as a body, have emphasized in practically every meeting that you have held. To the man who is attempting to train for expert service, this is a splendid and signal encouragement. It makes us feel that the young man and the young woman who are prepared here to deal with the problems of engineering, of sanitation, of health, of law, of education, of public welfare on its many sides, are not being trained any longer solely for private or for commercial purposes, but they are being trained for the service of the state and for the service of the city. (Applause). And

that the city is waiting for them, that the city, just as the private enterprise, is looking to the University today, and that these young men and young women among whom you sit are feeling the appeal that is directed toward them, the appeal to come and serve us, you come and not only open our mines and drain our swamps and build our roads and make our unhealthy places healthful, but you come and help us rear here in this golden State a better and more splendid and more serviceable type of municipality.

That is what your presence here means to us, means to those of us who teach and those of us who study. I hope, too, that whatever impression we may have made upon you, you have at least realized that this State University is no closed or cloistered city, that we do not light candles here to set them under bushels.

I recall a very striking and very radical expression of academic purpose made many years ago when our sister institution Stanford, was founded, made by the distinguished head of that institution, in which he referred to a time when scholarship was not manhood, when the life of the university had no relation with the life of the world. Now I am sure that that time never really existed quite as distinctly as might be supposed from that condition. But at the present day, at least, it is not the case. A state university like this one exists, not primarily for the benefit of those who people its halls; it exists primarily for the betterment of the State and for the service of the world. (Applause).

Any one who approaches the buildings of an institution of the older type, an institution whose halls were planned, perhaps, some hundreds of years ago, must be impressed with the difference which is reflected even in the architectu-

ral plan between the older type and the newer. When you approach an old and long-established university, you are admitted usually through gates that bar the outside world. You pass then into enclosed areas and cloisters that still reflect the retirement, the seclusion of mediaeval ideals. There is something of opportunity there, but it is not the modern university. Here, on these academic grounds, no door is closed, the gates are never barred. Whatever we have here of plant, whatever we are able to give, we want to give freely and fully to every inhabitant of the State and to every visitor within our doors. Our Greek theatre, our laboratory, our lecture halls, our walks and paths and groves of oaks, are for public service, and are so dedicated.

I remember a good many years ago a very interesting man, Dr. Smith, of China, made an address here before the student body. He had been connectedly passing over the United States, and on his return he traveled rather extensively through our West and saw a good many institutions. He said he was somewhat puzzled as to why there should be so many universities. He said, "I don't know why these institutions should be called universities, unless it is that they limit themselves to one building." That is not the reason why we call this institution a university. It is not limited to one building, and it is not limited to one line of preparation for life—it is not limited to any single idea. But it does stand, if I may so paraphrase the language of its designation, it does stand for unity, it stands for one State of California, it stands, if possible, for one great center of meeting for men of intellectual purpose and of moral power within this State. It looks to see and it seeks to see this State a unified State. I do not need to remind you that we

who live here belong, in a way, to two set of our population. There are those of us who have grown up here, who are Californians by inheritance and by long, long residence, who have moved about over this great, imperial domain of the State, and along its deserts and its mountain, its valleys, its north and its south, and its middle; and then there is a very large and most desirable and welcome part of our citizenship who are newcomers, who do not feel the power and unity of this State as we do. Now, this institution, let us hope and let us pray, stands for a unified California, for the absence and disappearance of all sectionalism within the borders of our territory—for one unified, strong source of power and of life for the service of this State. (Applause.)

May I say just a word of a different character to my fellow collegians? As an alumnus and as a Californian, I rejoice that the splendid Pajamarino celebration last night was not succeeded by any excess of joyousness. It was a splendid celebration, it was a restrained and disciplined celebration in its finale. And that element of excess of spirit is the thing that distinguishes liberty from anarchy, good breeding from its absence, and disciplined power from its absence as well.

There is a very well known dignity of the English Church, in whose mind the wires frequently get twisted, so that he says what he does not mean to say, or does not understand what he is meant to understand. His reputation in this respect has become quite wide. He said that one night he was seated at dinner, and the young lady at his side found it somewhat difficult to make conversation with him, and her effort finally descended to the level of the fruit up on the table. She said, "Bishop, do you like bananas?" "Well," he said, "Since you put the ques-

tion to me, I will have to admit that I really prefer the old-fashioned night gown." (Laughter.) If he could have been with us last night, I am sure his prejudice would have faded away. I told the story on one occasion to Bishop Charles Brendt, and he said, "That's quite right. I know the gentleman very well. It is very characteristic of him. The last time I was in England, his reputation in this direction had become so bad that a lady friend spoke about it, and he said, 'Well, Madam, that used to be so, but it is not so any longer. Now I am giving great attention to my pews and keys.'" I am very glad that, in the termination of our celebration last night, there were no sanctuaries violated, there were no locks forced, and that all who participated in that splendid expression of university life and university virility, we were mindful of the pews and the keys.

Now I have the very great pleasure and privilege of introducing to you His Honor the Mayor of Santa Cruz, Mayor Stone. (Applause.)

Address by George W. Stone, Mayor of Santa Cruz.

Mr. President, gentlemen of the faculty, students of the University: Representing the League of California Municipalities it is my first duty to express to you, Mr. President, representing the University, the gratitude which I am sure we all feel for the most admirable facilities which you have furnished the League for its Fifteenth Annual Convention. The success which has attended this meeting has been due, very largely, to the splendid setting which the University has given it, And your presence, gentlemen of the faculty, has justified that the student body and the University generally have a favorable opinion of

and value the labors for the betterment of the cities in this State in which the League is engaged.

I am expected to say something to you with reference to the League itself—something to the student body. This League was formed about fifteen years ago, in the neighboring city of San Francisco. At that time, municipal government throughout the nation was somewhat under a cloud. Charges of graft and bribery and corruption were freely made, and in many cases with doubtless more or less justification. The League of American Municipalities had been formed and was actively engaged in promoting better conditions. But that body held its conventions in the East, too far away for participation by California cities, without an unreasonable sacrifice of time and money. It was therefore determined that a State League should be formed for the improvement of the municipalities of our own State. This has been done successfully. The original number of cities enrolled in the League was thirteen. And notwithstanding the proverbial hoodoo of the number thirteen the League has steadily increased until it now bears upon its roll one hundred and forty-seven cities and towns. It has already accomplished much, and has a prospect before it of still greater growth.

Every subject relating to life in municipalities is receiving attention and careful study, with results more and more plainly visible each year. There is the improvement of streets, building sewers and waterworks, street lighting, fire fighting, parks and playgrounds, and all the modern applications of science and inspection that contribute to the comfort and convenience of the dwellers in our cities and towns, are discussed and debated. Further improvements are attracting attention, and when public de-

mand will warrant the expenditure, we shall doubtless have an extension of service in new and possibly somewhat novel directions. Public sentiment must precede the inauguration of new enterprises. And this League seeks to put the facts before the people as fast as they are ascertained, that they may determine for themselves when these new enterprises shall begin.

For example, city planning is already one of the scientific provisions. Civic centers are advocated where practicable. There is an increasing call for city auditoriums, playground instruction, municipal bands, and even city theatres or opera houses, and other facilities for making life richer in our communities.

At this point we may discern why the municipalities and the university naturally come in contact. Progress along the lines indicated in what I have just said, depends largely upon the active co-operation of the most intelligent classes. Every observer of passing events will notice a new interest in social problems, whether applied to government or to the business and social life of our time. This spirit is finding its way into our public schools, and especially into the colleges and universities. And for this reason, we may be sure that the progress indicated will eventually be made. National and state issues are of course important. But when we reflect that we touch the government of our home community every day and every hour, and that our social privileges, our business interests, our daily lives, are directly affected by that government, we immediately realize how much of the state we have in these smaller divisions of the nation.

That a new and increased interest in city government is general, may be seen from the widespread discussion concerning the best form of municipal govern-

ment. The old-fashioned practice of subjecting cities to party rule has, especially in this State, fallen into disuse. Many of us can remember when a non-partisan city government was regarded as an iridescent dream. It is not now the exception, but the rule. The bosses, big and little, are now rapidly disappearing. The people have found a way to govern themselves, or, if that is too strong a statement, have found a way to get an official who is not doing as was done in the past, but is working for the city's good.

The League of California Municipalities affords an opportunity to compare experiences in the matter of governmental forms, and whichever is the best way will be discovered in good time by this process of comparison. Manifestly, it has not yet been found. But protection in this, as in most departments of human activity, is hard to achieve. Perfection in municipal government must wait upon perfect citizenship. This is even further off than the perfect form of government. Just now pleasure and business, in the order named, seem to occupy the center of the stage. The pleasure is good, and business is a prime necessity. But these are not all that is necessary or desirable. We need education applied to art and science—the art of making the city beautiful of which we hear so much. Education must mean something more than knowledge of what men have thought out and written down in books. It must help one to do some thinking for himself or herself. The mind must be admitted to the courts of pleasure as well as the bodily senses. Beauty is perhaps quite as important an educative force as mathematics. It is certainly more inspiring. Our cities ought to cultivate the love of beautiful in nature and in art, and they will do so when a higher de-

velopment of citizenship appears and takes command of the situation.

I am at this moment looking into the faces of the young men and the young women who are to help determine what citizenship of the next generation shall be. You will influence, for better or for worse, the coming government of our cities and of our towns. The cities are the nerve centers of the nation. From them radiate the power and influence that determines the quality of national civilization. It would not be accurate to say that the great men and women of our time comes from the towns and the cities, but it is truthful to say that the industrial and commercial activities of this nation, that the active, hustling leaders of commerce and industry, carry on their work in the great centers of population. These cities draw to themselves a most restless and ambitious class of men, ready to go to any length to accomplish their purposes. And in this mingling of the good and the bad, of the rich and the poor, of the generous and the avaricious, we find our problems of government. There is something in a city besides the care of its streets and its parks, its lighting and water system, the handling of its police force. The human problem is greater than all, and vastly more important.

Amid the din of these clashing interests, the social problem must be solved. The citizens must finally settle all social and industrial differences. It is for them to adjust the relations between the contending factions blinded by self-interest, and to hold the scales of justice even. Good government in the cities means good government in the nation.

Here is a field for profound study, and one well worthy of your best efforts, one that must be conquered by cultivation, before there can be much help for the larger divisions of the nation.

There is room everywhere for devotion of the highest character. The perfect city has not yet appeared. Before we see it, there is a great work to be done.

I have spoken of good citizenship. What is it to be a good citizen? Certainly it does not mean to be a good money-maker. Nor does it mean to be a great lawyer or other professional man or woman. It means, first and above everything else, character, integrity. Next it means intelligence. Those qualities, combined in one person, constitute good citizenship. But even those high qualities are useless unless they are manifested in action. It is not enough just to be good; it is not enough to know just what to do, if one is cowardly and indolent and makes no use of the talents nature has intrusted to him. And so I add to the qualities demanded for good citizenship, an activity that is both courageous and intelligent, and this means manliness and it means womanliness.

Doubtless most of you are looking forward to a career of some importance in the world. I commend to you the purification and uplift of your home town or city, yes, even your neighborhood, if your home is in the rural district. Here you will find the opportunities to become a hero or heroine. It is a high honor to be known as a good citizen, and it is by no means so common as to be without significance.

You ask how you may serve your city? Answering that question, I would point, for example to the city slum, that malignant growth in the body politic, destroying the bodies and the minds of those who come in contact with it, and many times those who never saw it. When we have the good citizenship of which I have spoken, the slum will disappear. In this land of plenty and of golden opportunities, there is no necessity for a slum. We sometimes hear the

slum called a necessary evil. There is no such thing as a necessary evil. (Applause.) Evil is an abnormal condition. It has its roots in human sensuality, in avarice and in ignorance. The slum can be abolished wherever there is really a good citizenship to attack it. Good citizenship will create a clean moral atmosphere, in which vice cannot survive. Vice is the curse of our municipalities. And when all good citizens combine to attack it, its days will be numbered. The vicious classes are well organized and efficiently led. Let the virtuous classes become equally well organized, and with competent leadership they will achieve a triumph and a victory over the combined forces of evil.

I exhort you young men and young women to be neither reformers nor per-formers, but above all, formers of a newer and a higher and better order of citizenship for our towns and our cities. That is the next number on the program of city improvement. California needs everyone of you for this undertaking. And you need the experience, to develop all that is best in you. Nature has endowed us with a wonderful field for just such a noble undertaking and this is the time to begin it. Let us make our cities the pride of the State. This work of improvement is already going on, and it only needs your help, young men and young women, to carry it to perfection. Poverty, in this fertile region, is either a disgrace or a calamity. There is enough for everybody, when vice is driven out and when the bodies and the minds of men and women are kept clean and pure, we shall have the most important problems of our city government permanently solved. And then we shall also have money enough to build all these new public institutions and develop our parkes and our playgrounds, and all the wholesome and desirable pleas-

ures that are needed to make us a happy, a contented, and a prosperous people. I thank you. (Applause).

At this point, after the rendering of various college yells and songs, the student body departed from the hall.

THE PRESIDENT. The next number

on our program is a paper by Professor C. L. Cory, of the University of California. Professor Cory has honored this organization before, and we are certainly very fortunate to have him here this morning to give us some light on Light. His subject is "Modern System for the Illumination of City Streets."



A MODERN SYSTEM FOR THE ILLUMINATION OF THE CITY STREETS

By Professor C. L. Cory, of the University of California

Mr. President and gentlemen of the League: My subject this morning is "Modern Systems," the plural rather than the singular, "For the Illumination of City Streets."

As a general summary, I beg briefly to put the kernal of the subject of modern electric street lighting systems in the following very few words: You were probably all aware that the first successful device for getting illumination by the means of the use of electricity was the carbon incandescent lamp, which Mr. Edison had so much to do perfecting. Almost simultaneous with the introduction of the carbon incandescent lamp, with its distinctly red flame or light, came the electric arc, and, as we say technically, that arc was an open arc, that is, the carbons or electros were round and almost pure carbon was used, and the arc was extremely brilliant in color, white—the old open, direct current arcs with which every member of this League who has been on duty for a number of years, unquestionably is thoroughly familiar. I want merely to say this: That old carbon incandescent lamp has been so completely superseded by what we know as the

metal filament incandescent lamp, commonly known as the Tungsten lamp, that at the present time, except for some peculiar purposes, the Tungsten lamp has taken the place of the old carbon incandescent lamp. Although it is metal, the Tungsten is naturally very brittle. Chemists and electrical engineers have gone so far as to change the character of the metal filament so that it is extremely ductile or tough, and in that way we have our present or improved Tungsten improved metal filament lamps. Not only is the light very much whiter from this Tungsten incandescent lamp, but the energy required for a given amount of illumination is only one-third that required by the old carbon incandescent lamp.

What I especially wish to impress upon you this morning is that just now we have available a type of arc lamp which is just as much ahead of the old open direct current arc lamp as the Tungsten metal filament is ahead of the old carbon lamp. Very briefly, it is this: It is a well known fact that the metal fallium is of all metals capable of giving out the greatest amount of illumination. Carbon arcs, as you well remember, were not

steady. They would burn so rapidly that they had to be trimmed every night. In order to avoid that, inventive geniuses devised a scheme whereby these carbon arcs for the arc between the two carbons was enclosed in an inner globe, and it is possible to operate those lamps just as well on an alternating current as on direct current for a period of seventy hours without trimming. And electrical engineers and chemists have given us a new type of arc. It is not a carbon arc at all. The arc is one where the upper terminal is nothing but a permanent and indestructible copper disc. Below there is an electrode, partly carbon, but which contains a number of chemicals like fallium, and is generally known as the magnitype arc, merely because the carrying of currents by this lower electrode is known as the magnitype or the lodestone of the ancients.

This arc has peculiar qualities. In the first place, we are able to get, with an expenditure of about half as much energy, the same amount of illumination we used to get with our old arc lamps. And then finally, we are able to get two different types of lamp, one of which consumes only 300 watts an hour, and the other of which consumes only 500 watts, we have a larger lamp of the magnitype type, so called, which consumes 500 watts, but it gives very nearly twice the illumination. The interval during which these lamps may go without trimming is very great—as much as one hundred hours.

We have still another type of lamp, and those of you who have observed the red, flaming arcs in front of our amusement places in the cities, will immediately turn your mind to the type of lamp to which I now refer, known as the flaming arc. That lamp at the present time, of the enclosed type, is the most efficient

source of illumination we have in existence.

Just one word in conclusion. With the introduction of this new type of arc lamp, it is quite possible for the municipality to maintain in the outlying districts the Tungsten incandescent lamps supported from the middle of the streets, if you have trees—that light may be either 200 candle power or 100 candle power, whatever you choose, and directly connected with that in series we can place down in the business district and along the boulevards, to a certain extent replacing the electrolier system which has so extensively been adopted, this new type of arc lamp, because the consumption of electrical energy by the new type of arc lamp, with its single unit standard, as it is called, is decidedly less than that of the five-light or the three-light Tungsten clusters. And you can even maintain those, if you choose, as Tungsten lamps—they are all operated upon the same circuit. We have gone back to direct current to operate these. But since the time of the early, open arc lamps, we have very efficient rectifiers, known as Mercury arc rectifiers, so that that is not a difficult matter. You are all aware that the alternating current is the form in which electrical energy is now generated, transmitted and distributed, to the almost entire exclusion of the generation of direct current, so it is very easy to do that.

Just one other word. In the City of Chicago recently, these particular types of luminous arc lamps, so called, have been introduced in the playgrounds there, and the way they are used is to place these unit standard arc lamps around the edge of the playground, at a distance of some sixteen feet above the ground. And when we come to study the distribution of light, from this new type

of arcs, we get a very uniform degree of illumination.

There is one other thing which those of you responsible for good street lighting will appreciate, I am sure, and that is that the discarding of the old type of carbon arc, substituting the metal type of arc, quite as we have discarded the carbon incandescent lamp and now use the Tungsten incandescent lamp, has resulted in a wonderful decrease of outages, lamps that do not burn. So it would seem that the time is not far distant when, over a single circuit and by a single device, we may operate these more or less brilliant lamps along the boulevards, separated by distances of 300 to 500 feet, and may have the most effective and yet very inexpensive street lighting done in our city streets, effecting the desired result that in the outlying districts, where the illumination is not so necessary or in the small towns, operated upon the same system, we can have our Tungsten incandescent lamps, either

suspended on open brackets or supported from the center of the street, in combination with the other system of lighting for the portions of the city requiring it. It is to this development of electric street lighting that I desire to call your attention. I have a number of lantern slides that might have been used to convince you, if you are not already convinced. But the development, I can assure you, at the present time makes the principle of getting the maximum amount of uniform illumination from the minimum quantity of electricity, the principle of greatest importance. And it does seem that these new, luminous arcs are to be given most serious consideration, and in many cases they will be found, I think, to be superior to the Tungsten electroliers, that are commonly used and very extensively used, in fact, not only in the larger cities, but in the smaller districts as well. I thank you. (Applause.)

THE RELATION OF MUNICIPAL PUBLIC UTILITY CORPORATIONS TO THE PUBLIC

By Haines W. Reed, Member City Council of Los Angeles

Mr. President, Delegates to the Convention of the League of California Municipalities, and Friends:

A public utility corporation* is one which supplies some service, commodity, substance or convenience of common necessity to the people of a community. As a rule a public utility corporation operates through public streets or alleys or over public property, and is dependent for its existence upon a franchise granted

by municipal authorities. Even where a public utility corporation operates over a private right of way. It must cross public streets at frequent intervals and must secure a public franchise for that purpose.

Nature and Functions of a Public Utility Corporation.

A public utility corporation is essentially a public institution, or agency of the people created by public authorities for

* The term "Public Utility Corporations" as used throughout this address refers only to municipal public utility corporations.

the purpose of discharging a public function. It is endowed with semi-governmental attributes and responsibilities and performs a function which might logically and properly be performed by municipal authorities, and which many cities are now beginning to perform for themselves. The granting of a franchise is nothing less than a delegation or conveyance of public or governmental authority into the hands of private individuals. The excuse for placing such a dangerous power in private control is the hope that it will be exercised for the benefit of the whole people. The motive which leads public authority to seek the aid of private persons in discharging functions of public service is to secure for the people these accommodations and conveniences which municipal authorities are themselves unable to supply because of inadequate business organization or lack of financial resources. The motive which leads private capital to seek such public authority and responsibility is the desire for private profit through rates charged for service. On the one hand there is the desire for good service at low rates; and on the other hand the desire for large profits with the smallest cash outlay. A franchise is a compromise between these two conflicting motives. If the corporation is more powerful than the city, or if public officials are under the influence of the corporation and do not protect the peoples interests, the corporation gets the best of the bargain. That is one reason why public utility corporations take such an active interest in politics, and often contribute so largely to the campaign fund in municipal elections.

Growth and Development of Public Utility Corporations.

Public utility corporations have increased in number, importance, power

and efficiency with the growth and development of cities. The question of dealing with public utility corporations is one of the modern problems of urban life.

Where many people, following some combination of economic circumstances, group themselves into a community and live in close proximity to one another, they soon develop certain common needs and desires which people living in comparatively small or isolated groups do not feel. The first common need of a new community is for a system of water supply and distribution. Then comes the need for some common, cheap and convenient means of lighting and heating homes, factories and places of employment or public gathering. Oil lamps are inadequate for lighting a large city, and wood for fuel is soon cleared away from the neighborhood of large settlements.

As the community grows in population and spreads over a large area, the difficulty of walking or driving from one portion to the other, or from the home to places of employment, or centers of business, becomes serious and brings forth the need for some common mode of cheap and rapid conveyance. In answer to this demand, street and interurban electric railways are established. And as the city, provided with its means of rapid transit, expands, and grows by leaps and bounds, the inhabitants begin to feel the need for some system of verbal intercommunication between remote portions of the community. It is this need which calls into being a telephone corporation.

And so the various needs of a community expand and develop, one growing out of the other—, each complexity of city life breeding new complexities. And as these various needs arise they are almost invariably supplied by private capital. Cities have not yet learned to utilize their immense financial resources to the

same advantage that private resources are utilized, and public business is not yet conducted with the same degree of economy, efficiency and precision which characterizes the management of private business. But there is still another reason why public utilities are usually supplied by private capital. In most cases the coal, oil, and water-power for generating light, heat and energy are owned by private persons who must be induced through liberal grants of franchise privilege to distribute among the masses the conveniences which they have secured and capitalized. Community consciousness has not yet become sufficiently strong or sensitive to foresee community needs or to seek to gain control of those natural resource which are essential to a city's growth and development. City planning is so far confined almost exclusively to the artistic and aesthetic side of city development, and does not yet contemplate providing for the more fundamental, economic needs of the city population. But American cities, as a result of many years disastrous experience, have come to realize the need for more comprehensive city planning. Municipal engineering in its various branches is more and more becoming a professional vocation, while municipal financeering is gradually assuming such importance that it will demand the attention of men of highest ability, able to cope with Wall Street and to utilize the great financial resources of cities to the best advantage of the people.

The Relation of Public Utility Corporations to the People.

Public utility corporations exercise a profound and far reaching influence upon the social and business life of every community, and upon the individual happiness and well-being of every citizen within the community. The urban resident,

in almost every act of his daily life, is dependent upon some public utility corporation. His morning meal is prepared on a gas stove connected with the plant of a public utility corporation. He goes to work, and his children go to school, on electric cars, operated by another public utility corporation. Throughout the day he makes continual use of the telephone, which is supplied by still another public utility corporation. In the evening he walks through streets illuminated from the plant of a public utility corporation. If the cars are late, or over crowded, he loses time and suffers inconvenience. If his telephone is out of order both his business and his disposition are upset.

The whole city is bound together with a network of wire, cables and pipes, and inseparably linked together by the steel rails of electric railways. Public utility corporations fill our thoroughfares with their unsightly, dangerous, but comfort producing fixtures, enter every home with tentacles of wires and pipes, and levy tribute on every family.

Public utility corporations exercise a decided influence upon social conditions in large cities. There is no doubt that the development of cheap and rapid means of transportation exercises a direct influence on the congestion of population and its attendant social evils. Organized charities may help to reduce the evils and hardships of tenement life, but the only way to abolish the tenement is to build more lines of cheap and rapid transportation into the suburbs. Every extension of an electric railway line which makes new territory and cheap land available for residence purposes helps to reduce rents and counteract the tendency to over crowding of population. The city which has the greatest number of miles of electric railway, in proportion to population, and has proportionately low fares, should be the most free

of any city from the evils of congestion of population.

Public Utility Corporations Tend to Become Monopolies.

Public utility corporations by their very nature tend to become monopolies. This tendency is due partly to the fact that public utility corporations control an essential of city life which all persons must purchase, and partly to the position which they occupy in public streets. Students of jurisprudence have defined public streets as "the common highways of traffic and travel which all persons are privileged to use in common." But a franchise violates this theory of equal right by granting to a private person or corporation the exclusive right to use a public street so far as a particular service is concerned. And even if the franchise does not specifically grant an exclusive privilege, the exclusion is accomplished through the limit of street space which makes duplication of sets of utility fixtures impracticable if not impossible. Even should the space be sufficient to accommodate two sets of utility fixtures, of a similar character in the same street, such duplication would not be desirable from a public or private standpoint. Rate cutting between competing companies almost always results in an ultimate combination of interests, or a territorial agreement, and rates are finally raised to the point necessary to pay the cost of both the systems. And it is not undesirable from a public standpoint that utility service should be rendered by a monopoly provided the monopoly is properly controlled and regulated in the interest of the people.

But a public utility monopoly, unless carefully controlled by public authorities, soon becomes a menace to popular well-being. An unregulated monopoly of any kind is dangerous, but a monopoly of a

common necessity of all the people, exercising exclusive privileges in public streets, is the most dangerous of all monopolies. Inadequate service and exorbitant rates are the almost inevitable outcome of unregulated monopoly control of public utility service.

Regulation of Public Utility Corporations.

The monopolistic character of public utility service, coupled with the absolute dependence of the people on that service, makes it imperative that public officials exercise strict supervision and control over all public utility corporations. The regulation of public utility corporations may be accomplished through state laws, charter powers of the city, through the general police powers of each community and through restrictions placed in franchises granted by municipal authorities.

Franchises.

A franchise is a grant of authority by public officials to private capitalists to establish, operate and maintain fixtures and equipment in public streets or ways. It defines the duties, and limits the powers, of the public utility corporation. The granting of a franchise is a very serious and important undertaking, fraught with unusual possibilities of good or evil for the public. A franchise creates agencies of public service with power to capitalize the needs of a community, and give to private individuals a monopoly position in public streets. It is a very difficult task for the conscientious statesman to foresee the needs of future generations or the contingencies which may arise during the life of the franchise. His task is made doubly difficult where there is but one company to bid for the franchise. Any corporation which has a monopoly control over a given service with power to keep out competition can dictate the terms on which it will accept a franchise.

If public officials refuse to grant the franchise on terms proposed by the corporations then the people, who need the proposed service, usually become impatient at the delay, and demand that the franchise be granted on any terms the corporation may dictate in order that they may have immediate relief from the inconveniences which they suffer. In this way, the careful public official is often forced to grant a franchise against his best judgment, and on terms which he realizes are not for the best interests of the community.

A Uniform Franchise Policy.

To relieve this embarrassing situation every city should adopt, and adhere to, a fixed and uniform franchise policy, and this policy should be fixed in the charter or laws of the city in such a manner as to prevent its being tampered with by public utility corporations or by public officials who happen to rise on the tide of political fortune, and impossible of being changed except by vote of the people. This will relieve honest officials from political pressure at the time of granting franchises and will prevent dishonest officials from abusing their power. Public utility corporations would then know exactly what to expect from the city, and could arrange their financial policy on a fixed and permanent basis to harmonize with the city's franchise policy. This plan would largely remove one of the incentives which leads public utility corporations to take an active part in politics and would protect public utility corporations against the raids of a radical administration.

Duration of Franchises.

In establishing a uniform franchise policy the most important consideration is the length of time for which franchises shall be granted. Perpetual franchises

are no longer countenanced by self-respecting communities. Long term franchises are becoming more and more unpopular. Short term franchises, up to 25 years, have the advantage of limiting the time during which possible abuse of power by a public utility corporation may have to be endured.

But the whole idea of limiting the life of a franchise to a definite period of time is repugnant to the theory of utility service. That a service upon which the people of a community are dependent should be cut off and terminated at the height of its usefulness because a musty franchise happens to have expired is the height of public folly. Property values are largely determined by the utility service available. People adjust their habits of life and mode of thought to the character of utility service which they use. Public utility service should be established primarily with a view to continuity and regularity. It is wrong that a convenience of such vital importance to the community should be operated with any degree of uncertainty as to its permanence.

When a franchise is granted for a fixed period the owner must hasten to get back both the interest and principle on his investment during the life of the franchise. He must operate his property as a casual and temporary enterprise. Quality of service is consequently sacrificed to profit, and the property is allowed to run down and become junk towards the end of the franchise period.

Most public utility corporations which have been for a long time established are dependent for their existence on a series of franchises granted from time to time as the need of the community for new extensions developed. Whenever these franchises have been granted for fixed periods they almost invariably expire at different and widely separated

dates. New franchises which may be granted to these same corporations will expire at still different dates, and the city will never be in a position to deal with its franchise problem as a whole.

The Indeterminate Franchise.

But the many inherent defects in the fixed term franchise may be satisfactorily overcome by granting franchises for indefinite or indeterminate periods. The indeterminate franchise is revocable at the will of the city, upon proper notice. In granting such a franchise the city should obligate itself to purchase the property established thereunder whenever it revokes the franchise.

The indeterminate franchise not only provides for the continuity and permanence of service, but it enables the city to deal with its utility problems as a whole whenever it is in a financial position to do so. It puts public utility corporations on their good behavior and makes them responsive to the will of the people. At the same time it protects private investment in public utility corporations by providing that the city shall pay the value of the property whenever it revokes the franchise. But best of all, it leaves future generations free to work out their problems of utility control as those problems arise, and makes easy the inevitable evolution towards municipal ownership of all public utilities. No legislative body has a moral right to saddle posterity with needless burdens or obligations which posterity has no voice in assuming.

But the indeterminate franchise, while capable of unlimited benefit to the community, unless carefully safeguarded, is likely to result in a perpetual franchise with all the bad features of perpetual control of utility conveniences. This danger is most likely to result through the financial inability of the city to exer-

cise its right to purchase the property of the utility corporation. If utility corporations are left free to capitalize their franchises, and set any price they see fit upon their physical property, they can very readily make it impossible for a city to exercise its right to purchase under the indeterminate franchise. Every franchise should, therefore, specify the exact method of determining the value of the property in case of purchase by the city and should eliminate all elements of franchise value or goodwill.

Franchise Value.

Franchise value is nothing more or less than a monetary estimate of the worth of public patronage, and should never be capitalized for private profit, and should never appear as an asset in the capital account of any corporation. A franchise is nothing more nor less than a loan of public authority to be held during good behavior, and forfeited whenever it is abused. It should never be granted on terms that will permit it to be capitalized, and the public should never be required to pay anything for the return of their patronage into their own hands.

In order that the city's right to purchase under the indeterminate franchise shall become an active possibility, every such franchise should provide some means of amortization of capital out of earnings. A fund for the gradual retirement of capital should be created out of surplus earnings, after the fixed charges for maintenance and interest on the investment have been met. All money accumulated in this fund should accrue to the benefit of the city whenever it desires to purchase.

Disbursements for Revenues of Public Utility Corporations.

Control and regulation of the disburse-

ment of revenues of public utility corporations is a necessary and legitimate function of municipal government. But this function should be exercised with great care and intelligence and according to well established and just principles. In the first place the revenues of a public utility corporation should be applied to meeting the expenses of operating and maintaining the property at a high standard of efficiency. Then a fair return, of not to exceed six per cent, on the capital actually and necessarily invested should be allowed. This takes care of the fixed charges of the corporation, protects the investor and maintains the integrity of the investment. All revenue over and above that needed for operation, maintenance and interest on the investment may be regarded as surplus earnings and disposed of by the city as it sees fit. Out of such surplus earnings the city should provide a fund for the amortization of the capital invested in the enterprise. All industrial enterprises, both public and private, should be operated with a view to gradually retiring the principal as well as paying the interest on their investment. The amount set aside for the amortization of the investment should be sufficient to gradually retire the bonded debt in a reasonable length of time, say 20 years. The amount of money accumulated in this fund should apply as part of the purchase price of the property whenever the city desires to take it over. In this way the people may gradually purchase their utilities through the rates which they pay for service. The burden of affecting the purchase in this way is so slight, and is distributed over such a long period, and among so many people, that it can hardly be considered a burden.

Any surplus earnings which may remain after the amortization fund has been provided for may be either paid into

the city treasury, divided between the city and the corporation, or consumed in reduced rates or improved service.

Regulation of Rates.

Every municipality should exercise careful control over the rates charged for service by its public utility corporations. It is the duty of every city to see that its inhabitants get the necessities of life at as low a cost as possible. The almost complete dependence of the people on those essentials of city life such as gas, light and transportation facilities, enable the corporation controlling these necessities to charge exorbitant rates unless city authorities intervene. One of the first duties of government is to prevent individuals from capitalizing the dependence of their neighbors and making profit out of the needs of their fellows.

But authority to regulate rates should not be sufficient to enable city officials to reduce rates to a point that will prevent the payment of fixed charges for maintenance and interest on the investment, or to discourage private capital from seeking safe investment and legitimate profit in public enterprises.

Publicity of Accounts.

All efforts at regulation of rates for public utility service should be based upon a complete and thorough knowledge and understanding of the financial condition of the corporations whose rates are to be regulated. This knowledge can only be obtained by a first hand investigation of the books and accounts of public utility corporations by the proper city officials. It is essential therefore that municipal authorities have access to the accounts and vouchers of public utility corporations at all reasonable times. Experience has amply demonstrated that cities cannot entirely rely upon the statements of public utility corporations as to

their financial status. Complete publicity of accounts will not work any hardship on a corporation which conducts a strictly legitimate business free from all elements of stock gambling and speculation. The purifying light of public scrutiny serves to correct many evils which thrive in dark places.

Standardizing Accounts.

But even where public officials have access to the accounts of public utility corporations these accounts may be kept in such a manner as to convey little intelligent understanding of the corporation's true financial status. The right of public officials to examine the books of public utility corporations should, therefore, be supplemented with the right to prescribe the form in which such accounts shall be kept. Standardizing of corporation accounts along the lines of most approved and up-to-date book-keeping methods simplifies the work of the public investigator and should be no disadvantage to the public utility corporation.

Service.

Every city should exercise comprehensive control over the services rendered by its public utility corporations and should insist that service be adequate to meet the needs of the public, and of such a character as to insure the safety, health, welfare and accommodation of the people. To this end city officials should have authority to require the construction of such extensions or additions to the plant and system of public utility corporations as may be necessary from time to time to meet the reasonable demands of the public for more extensive service. This authority is particularly necessary in those cities where utility service is in the hands of a monopoly. Cities should not only have the power

to require the construction of needed extensions of the plant and property of public utility corporations but should also be empowered to build such extensions on their own account, either by assessment district, bond issue, or out of tax funds, and to require public utility corporations to operate such extensions and pay a fair rental for their use

Public Utilities Corporations Operated for Speculative Profit.

Extensions of public utility service, when left entirely in the hands of public utility corporations, are often made for the purpose of influencing real estate values rather than for the accommodation of the public. This tendency is particularly noticeable in the operation of electric railways which often build extensions into new and uninhabited subdivisions while thickly populated portions of the city are left without service. Some street railway systems have been organized and operated purely as an adjunct or side issue to a plan of real estate boom or speculation.

It is only natural that the men who control street railway transportation should operate it with a view to benefiting their own particular real-estate holdings. Owners of real estate subdivisions who desire to make profit out of their lands must seek the assistance of the owner of transportation facilities. Land which is inaccessible to the public has little value for subdivision purposes. But naturally the owner of transportation facilities will not extend his lines to a new subdivision unless he is paid for doing so or is given an interest in the profits of the venture. This combination or circumstances forces the big real estate dealer and the traffic boss into a bond of co-operative relation, and the real estate promoter is invariably on hand to urge public authorities to grant franchises to

street railway corporations on any terms which the corporation may demand.

But the operation of a public utility for real estate speculation or for any other purpose than to accommodate the public is contrary to the theory of utility service and opposed to the idea that a public utility corporation is an agent of the entire public, employed by the public to render a given service for a fixed rate of compensation.

The evils from this source are minimized, however, as soon as municipal authorities have the right to direct the construction of necessary extensions.

Economic Utilization of Street Space.

No city should bargain away its right to control the use of its streets. The need for economic apportionment of street space to meet the growing demands of a community, makes it necessary that cities retain the right to readjust the location of utility fixtures from time to time, as new conditions arise to make such changes or relocations desirable.

In granting franchises the city should reserve not only the right to require changes in the location of fixtures in public streets but should also retain the right to require the removal of obsolete or worn out equipment and its replacement by up-to-date and modern materials and appliances.

Municipal engineers are not agreed as to the most advantageous method of locating utility fixtures in public streets. Some believe that an ample supply of conduit ducts should be laid in every street at the time of paving to meet all future demands for cables and pipes. This obviates the necessity for continual tearing up of the street surface when new utility service is needed. Other engineers believe that utility fixtures should be placed in conduits located in the park-

ways. These conduits are accessible at all times without any need for tearing up the streets or interrupting traffic. Some students of municipal affairs believe that all utility fixtures should be placed in alleys, and that no new subdivisions should be permitted by cities unless alleys are provided in every block. They even go so far as to advocate that every fifth and sixth block contain an alley sufficiently wide to accommodate street railway lines in addition to the other utility appliances necessary for serving the people. But we are not concerned with the relative advantages of these schemes for economic utilization of space in public streets and alleys. All that is necessary is that cities should retain the right to readjust the occupancy of their streets and alleys from time to time in order to secure the most advantageous and economical use of the limited space available, and in order to insure the use of public thoroughfares to the greatest advantage of the largest number of people. New inventions and discoveries are continually revolutionizing utility service and every city should be in a position to secure the benefit of those improvements for its citizens by requiring public utility corporations to adopt new methods as they come into practical use.

Conflict Between Municipal and State Authorities.

Many utility corporations do not confine their operations to a single city but extend their plants and systems into outlying territory and surrounding towns and villages. In such cases it is difficult to determine what political authority should have jurisdiction over the corporation. It is unjust to rob a municipality of its control over a public utility corporation which operates through its streets is a serious burden on its thoroughfare, and of primary importance

to its citizens, because the corporation in question extends some of its lines of service beyond the city limits. On the other hand it is a hardship on the corporation to be harassed by the conflicting regulations of several political jurisdictions under which it operates. This difficulty can only be satisfactorily adjusted by the co-operation of state and municipal boards of utility in regulating and controlling those corporations which extend their service beyond the limits of any one municipality.

Financing Public Utilities.

It is extremely necessary that municipal authorities take cognizance of, and exercise control over, the method by which public utility corporations are organized and financed. All money raised for the purpose of financing a public utility enterprise, whether it be secured by voluntary contribution or through the sale of stocks and bonds, should be actually invested in the enterprise for which it was intended, and should not be pocketed by the promoters for their own benefit. Of course, a reasonable amount, not to exceed 5 per cent of the total amount of money raised, may properly be allowed for the expenses of brokerage and promotion. Every precaution should be taken by municipal authorities to prevent public utilities from being exploited for stock gambling purposes. Many a legitimate and promising utility enterprise has failed because it was used as a basis for stock and bond speculation rather than operated as a legitimate business enterprise. The tragedy of such a failure is not alone the loss to investors, but it deprives thousands of persons of a service upon which they are dependent.

New Features in Public Utility Situation.

Several new agencies of public service have recently appeared in California which are of importance to the people of this state and of the whole nation. Wherever good roads are developed the tyranny of an unregulated transportation monopoly may be broken, auto trucks, burning distillate and operated at low cost, are gradually driving electric railways out of the freight and express business, and are even competing with steam railways. Auto trucks have no expense for tracks, overhead construction, terminals or distributing systems. In a few years auto buses are destined to become competitors with electric railways for passenger traffic in this country just as they have in some European countries. Some means of controlling and regulating the use of public streets by these new agencies of public service will doubtless soon be necessary.

Municipal Ownership.

But no scheme of municipal control and regulation of public utility corporations will ever be devised which will entirely solve all of the difficulties and objections to private control of public business. The inevitable conflict between the desire for private profit on the one hand and the desire for cheap and efficient service on the other will always prevent a perfect working harmony between the people and the corporations which supply them with utility service. But intelligent control and regulation will do much to improve the condition of privately-owned public utility service until the time arrives when municipalities are ready to finance and operate their own public utilities.

PROCEEDINGS OF THE DEPARTMENT OF CITY ATTORNEYS

Tuesday, September 24, 1912.

The meeting was called to order 9:45 a. m., President John F. Davis in the chair. After the address of the President, Con. H. Goldberg, City Attorney of Willits, was introduced and submitted a paper entitled "The One Hundred Dollar Limitation in Cities of the 5th and 6th Class." He advocated that the trustees be authorized to make unlimited expenditures of public money under certain conditions if approved by unanimous vote. The discussion following his address was participated in by city attorneys Orr of Ventura, Guerin of Pnomia, Fitzgerald of Gilroy, Green of Antioch, Staats of Berkeley, Andrews of San Diego and others; at the conclusion of the discussion a committee of three was appointed by the chair to frame a suitable amendment and submit the same to the Department of City Attorneys before adjournment. The committee appointed consisted of Goldberg, Staats and Colberd. The next number on the program was an address by H. G. Jorgensen on the "Legitimate Uses of a Public Park." This address showed evidence of deep research on the part of Mr. Jorgensen and it was listened to with attention and interest.

The next matter taken up was the discussion of a better scheme for publicity of municipal ordinances for the benefit of city attorneys. Mr. Goldberg thought that the League should republish all new ordinances adopted by municipalities and distribute the same to the various city attorneys throughout the state. Assistant Secretary Locke tried to convince the department that the expense of this plan would be too great to be borne by the league at the present time. On motion the matter was referred to a committee

consisting of Locke, Greene and Jorgensen, who subsequently reported in favor of having a synopsis of the various ordinances published by City Attorney Andrews of San Diego providing that sections 1042, 1430 and 1435 of the Political Code, and sections 394 and 692 of the Municipal Corporation Act, be so amended as to abolish trial by jury in all prosecutions for violation of any municipal ordinances. Discussion on the resolution was postponed until the following day, and the Department adjourned to meet Wednesday, September 25th.

Wednesday morning, September 25th, 9:45, the meeting was called to order by President John F. Davis in the Chair.

The resolution of City Attorney Andrews was taken up and after a discussion the matter was referred to a committee consisting of Greene, Andrews and Johnson.

City Attorney Greene, representing both Antioch and Pittsburg, submitted an inquiry as to the effect of the repeal of Section 20 of the Vrooman Act relating to accepted streets, and asked the opinion of the Department on the question as to whether or not accepted streets can again be improved and the cost assessed on the property owners. Mr. Locke informed Mr. Greene that that section had been looked into pretty thoroughly and the opinion expressed that the cost of reimproving such streets could be again assessed on the property owners on the ground that the obligation to keep such streets in repair rested upon the existence of a statue and was not a contractual obligation.

Mr. Osborn, former City Attorney of Santa Cruz, submitted authorities upholding this view.

The next number on the program was

an address by C. R. Holton, City Attorney of Whittier, on "Special Charters for Small Cities." Mr. Holton's paper was listened to with a great deal of attention and referred to a committee for further consideration consisting of Butcher, Pitzer and Munger.

On motion of City Attorney Goldberg of Willits, a committee of three was appointed to express the sympathy of the department to City Attorney Kirkbride. The Chair appointed on this committee Goldberg, Long and Staats.

Thursday morning, September 26th, the Department of City Attorneys was called to order 9:45 a. m., City Attorney Butcher presiding in the absence of President Davis.

A resolution providing that it was the sense of the department that there should be excluded from the 15 per cent debt limit all debts incurred for municipally owned public utilities which, in addition to paying running expenses bring in sufficient revenue to cover the interest on such debt, was given due consideration and after some little discussion was adopted.

A resolution providing that the Constitution should be so amended as to exclude municipal bonds issued in lieu of assesment for local improvements, was also adopted, the argument being that a bond issued in the name of the municipality would be far more attractive and could be sold at a much lower rate of interest. Another resolution taken up and adopted was one providing that the Notice of Improvement in the Improvement Act of 1911 should be so amended as to contain a provision requiring a statement of the time and place for hearing protests.

The committee appointed to consider the resolution presented by City Attorney

Andrews of San Diego submitted a report favoring all the suggestions made therein, which report was adopted. On motion duly made and seconded the Chairman appointed a committee on new legislation consisting of the following members: Long of San Francisco, Long of Long Beach, Butcher of Santa Barbara, Greene of Antioch, Jorgensen of Pacific Grove and Monterey, Colberd of South San Francisco, Andrews of San Diego, Assistant Secretary Locke, and Staats of Berkeley. Each member of the committee promised to go to Sacramento whenever the occasion should require.

Under the heading of new business it was moved and seconded that it be the sense of the committee that a certified check be required on the part of contractors instead of a bond in all proceedings under the improvement acts. The next order of business was the election of officers of the department for the ensuing term. Redmond C. Staats of Berkeley was unanimously elected President and W. J. Locke was elected secretary.

Before adjournment the motion was introduced and carried declaring the sense of the Department that the State law should be amended after the plan of the State of Iowa providing for the sending of delegates to conventions of the league, one of such delegates to be the city attorney.

On motion of City Attorney Long of San Francisco, Assistant Secretary Locke was requested to prepare a paper to be read at the next convention setting forth the reasons why municipalities should turn over their rate making powers to the State Railroad Commission.

No further business appearing the Department of City Attorneys adjourned sine die.

NEW ORDINANCES RECEIVED

NOTE—These ordinances will be loaned to any officials of the cities or towns belonging to the League of California Municipalities or the League of Pacific Northwest Municipalities, upon application to Pacific Municipalities, 960 Pacific Building, San Francisco, accompanied by a self-addressed stamped envelope. Applicants will kindly return all ordinances promptly after using.

Establishing a pound, creating office of Poundmaster and prescribing duties.—Mill Valley, October 30, 1912, page 187.

Providing for the control and eradication of rabies.—Mill Valley, October 10, 1912, page 189.

Regulating the dispensing of intoxicating liquors.—Fairfield, November 12, 1912, page 191.

Regulating the speed of motor vehicles.—Hollister, September 4, 1912, page 185.

Creating department of buildings, establishing fire limits and regulating building construction.—Alhambra, August 10, 1912, page 184.

Requiring transparent windows and doors for saloons, etc.—Tehachapi, page 183.

Regulating laundries, etc.—Oakland, August 15, 1912, page 182.

Requiring mufflers on automobiles and motor cycles.—St. Helena, August 13, 1912, page 182.

Establishing a public library.—Los Banos, August 7, 1912, page 181.

Regulating speed of motor vehicles.—Pleasanton, August 8, 1912, page 181.

Providing for placarding and vacating unsanitary buildings.—Oakland, July 22, 1912, page 180.

Providing for the establishment and control of quarantine districts in contagious diseases.—Oakland, July 17, 1912, page 177.

Establishing rates for water and rules for the water department.—Palo Alto, page 175.

Regulating construction of cement sidewalks.—Oakland, July 5, 1912, page 174.

Regulating the slaughter and sale of calves.—San Mateo, July 1, 1912, page 173.

Establishing a license tax on Garages.—Rio Vista, July 5, 1912, page 172.

Prohibiting the erection or maintenance of dangerous obstructions in buildings.—Oakland, June 28, 1912, page 169.

Regulating the establishment and maintenance of hospitals.—Pasadena, June 25, 1912, page 169.

Regulating the dispensing of intoxicating liquors.—Ferndale, Humboldt Co., June 3, 1912, page 167.

Imposing a license tax on solicitors.—Pinole, June 1, 1912, page 166.

Regulating the business of pawn brokers and junk dealers.—Oakland, May 28, 1912, page 165.

Regulating the storing of high explosives.—Santa Ana, May 6, 1912, page 165.

Imposing a license on billiard and pool tables.—Nevada City, Sept. 20, 1912, page 161.

- Requiring property owners to remove weeds and rubbish from the fronting sidewalk.—Oakland, Sept. 30, 1912, page 161.
- Regulating the construction and use of moving picture theatres.—Oakland, Apr. 15, 1912, page 154.
- Relating to sparring exhibitions or boxing contests.—Stockton, Apr. 2, 1912, page 145.
- Establishing a board of health and defining its duties.—Mill Valley, March 26, 1912, page 145.
- Regulating the sale of fireworks.—Alhambra, March 16, 1912, page 143.
- Requiring dogs to be kept under restraint.—Sausalito, Oct. 7, 1912, page 140.
- Regulating the width of wagon tires.—Upland, March 6, 1912, page 140.
- Relating to the construction of sidewalks.—Marysville, Sept. 6, 1911, page 137.
- Relating to restaurants where intoxicating liquors are sold.—San Rafael, August, 1911, page 136.
- Regulating the laying of pipes and width of wagon tires.—Antioch, Oct. 14, 1912, page 190.
- Establishing fire limits, regulating building construction, storage of gasoline, removal of rubbish, etc.—Merced, Aug. 19, 1912, page 189.
- Regulating dance halls.—Santa Barbara, Oct. 24, 1912, page 188.
- Requiring sewer connections.—Winters, Oct. 8, 1912, page 186.
- Establishing rates for electricity.—Berkeley, Aug. 30, 1912, page 186.



RECENT COURT DECISIONS

In California, Oregon, Washington and Idaho, of Interest to Municipalities

From the advance sheets of Pacific Reporter under the headings of Dedication, Elections, Highways, Intoxicating Liquors, Municipal Corporations, Officers, Public Service Corporations, Street Railroads and Water and Water courses.

Elections (Wash.).—A city election held to be a general election. *State v. Sup. Ct. Chehalis Co.*, 127, p. 120.

Initiative (Ore.).—Misstatement of the name of a commissioner in an ordinance proposed under the initiative is a fatal defect. *Palmberg v. Kinney*, 127 P. 32.

Agent of city (Cal.).—Rule as to liability for his negligent acts stated. *Perkins v. Blanth*, 127 P. 50.

Initiative (Wash.).—The right to withdraw from an initiative petition is a personal privilege. *State v. Superior Court, etc.*, 126 P. 920. Failure of the commissioners to pass on the sufficiency of an initiative petition cannot defeat petitioner's right to a submission to a vote. *Id.*

- Excavations in a Street** (Cal).—Under Art. II, S. 19 of the Const. as amended, an ordinance prohibiting excavations in a street, without first obtaining permission from the board of public works, is valid. *Ex parte Russell*, 126 P. 875.
- Acting Superintendent of Streets** (Cal. App.).—An acting superintendent of streets is held to be a de facto officer whose acts are valid as concerning the right of a paving company to enforce an assessment lien. *Oakland Pav. Co. v. Donovan*, 126 P. 388.
- Acceptance of Public Improvement** (Wash.).—Acceptance of a public improvement by the authorized governing body is conclusive on both parties to the contract, in absence of fraud. *Morehouse v. City Clerk of Edmonds*, 126 P. 419.
- Street opening; exempting owners from assessment** (Wash.).—A contract between a city and the owners of a large improvement district which exempts property of the owners from assessment for the improvement, is ultra vires and void. *Turner, etc., v. Seattle*, 126 P. 426.
- Liability for personal injuries** (Wash.).—A city is liable for personal injuries to a pedestrian by stepping on a defective trapdoor covering an areaway in the sidewalk. *Connolly v. Spokane*, 126 P. 407.
- Water supply** (Wash.).—If a city raises the waters of a navigable lake from which it obtains a water supply higher than the ordinary high-water mark, it is liable in damages resulting from overflow of seepage through adjoining soil.
Austin v. City of Bellingham, 126 P. 59.



RECENT DECISIONS OF THE RAILROAD COMMISSION OF CALIFORNIA OF INTEREST TO MUNICIPALITIES

- Extending street across tracks.**—An order that the Board of Trustees of the City of Colton be permitted to extend Eighth Street across the tracks of the Southern Pacific Company. Nov. 5, 1912.
- Discriminatory telephone rates.**—An order that the Oakland exchange area for telephone service be extended to the City of San Leandro; also that the existing exchange service in San Leandro be maintained at the present rates. Oct. 17, 1912.
- Permission to purchase waterworks.**—An order that the Pasadena Land & Water Company be permitted to sell its property to the City of Pasadena. Oct. 14, 1912. Same order was made relative to the Pasadena Lake Vineyard Land & Water Company, and the North Pasadena Land & Water Company.
- Establishing passenger depot.**—An order that the Southern Pacific Company build a passenger depot at the corner of Third Street and University Avenue,

Berkeley, plans to be subject to approval of R. R. Commission; also that said company stop all its intrastate passenger trains at such depot. City of Berkeley v. Southern Pacific Company, Sept. 21, 1912.

Maintaining Water Supply.—An order that the Glendale Consolidated Water Company immediately repair the break in its pipe line and continue serving water consumers in the City of South Pasadena. Sept. 21, 1912.



ITEMS OF INTEREST

Nashville Man, After Long Auto Trip, Describes Good Roads He Covered.—One of the most enthusiastic boosters for Nashville, as well as the most extensive automobile traveler, is W. E. Jordan, an enthusiastic worker in the ranks of the Board of Trade Builders' Exchange, and the Elks' Club.

On July 12, Mr. Jordan, accompanied by members of his family, left Nashville on a pleasure trip, that, for distance and the number of points made, breaks the local record. In talking to representatives of the Good Roads Department of the Board of Trade, upon his return, Mr. Jordan gave this account of his trip:

"Our party left Nashville on the morning of July 12, and made the following cities, stopping at each place long enough to see the points of interest, and to pay a visit to friends. The first town we made was Louisville, then Cincinnati, Dayton, Toledo, Detroit, Mackinac, Buffalo, Rochester, Syracuse, New Albany, New York. From New York we took the ferry from Staten Island and toured New Jersey, via Lakewood, to Atlantic City. We spent three weeks in and around Atlantic City, driving our car a considerable distance each day.

"From Atlantic City, on our return home, we made Philadelphia, Baltimore, Washington, D. C., Hagerstown, Harrisburg, Altoona, Bedford, Pittsburg, New Castle, Youngstown, Ohio, Canton, Columbus, Dayton, Cincinnati, Louisville, and then back to Nashville, reaching home on the evening of October 7th.

"In many respects," continued Mr. Jordan, "this was a very remarkable trip. One of the things to be mentioned is that we traveled the distance of 3,857 miles. The best roads on the trip were found in New York and Pennsylvania and I would like to state just here that too much praise can not be said for the Warrenite roads in Allegheny county, Pennsylvania, of which Pittsburg is the county seat. In passing through this county, it was a pleasure to notice how well these roads were built. At one point I coasted my car for a distance of 5 1-8 miles, which in itself was a remarkable feat."

Another United States Court Sustains the Basic Bitulithic Patent.—The District Court of the United States for the Western District of Michigan handed down a decision, dated Nov. 4, 1912, in the case of Warren Brothers Company vs. the City of Grand Rapids, etc., sustaining the charge of infringement of the Warren Brothers patent and enjoining the city from constructing a proposed pavement on Barclay street.

The Gorham Engineering Company has received a contract from the City of Richmond, Calif., covering one Seagrave motor propelled combination fire engine, this being the second Seagrave machine purchased by the above city.

They have also received a contract from the City of Los Angeles, Calif., for two Seagrave motor propelled combination chemical engine and hose wagons, and one Seagrave motor propelled tractor this being in addition to the seven pieces of Seagrave motor propelled fire apparatus in service in that city at the present time.



When a man feels the necessity of being in two places at the same time he goes to the nearest telephone and sends his voice. It is not exactly the same thing but when a man talks hundreds of miles in opposite directions from the same Bell Telephone, it is about as good. In the daily use of the telephone a man travels all over town by wire in a few minutes. It is just as easy to travel all over the state and other states by means of the universal Long Distance Service of the Bell System.



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QUESTIONS AND ANSWERS

This department is for the use of city officials only. City Attorneys or others who may dissent from any opinion rendered or answers given, or who may be able to give additional information of value on the subject of any inquiry, are earnestly requested to write us at once in order that we may transmit such further information to the official making the inquiry. When requested, inquiries will not be published.

Q. We are preparing plans for a sewer disposal plant and wish the names of cities in California that are using the Imhoff tank. We understand that this tank is giving satisfaction in some of your cities but not in others and so wish to investigate conditions before deciding upon the type of plant to install here.

If you can furnish the names of cities using this device it will enable us to take the matter up with the city engineers of the several places and we may be able to secure useful data. Thanking you for the trouble to which I am putting you, I am—

ANS. In reply to yours of Oct. 31st, will say that the first Imhoff Tank in

California (the second in the United states) was constructed about a year ago in the Town of Winters; another has been built at Anaheim and another is under construction in Santa Maria. The tank at winters and the one being constructed at Santa Maria were built under the supervision of Engineers Haviland & Tibbetts, Alaska Commercial Building, San Francisco. The one at Anaheim was constructed by the city engineer, Mr. O. E. Steward, and has been in operation about four weeks. Imhoff tanks are now

under construction in Mill Valley, Fullerton, Hanford, and Fowler by the engineering firm of Sloan & Robson, Nevada Bank Building, San Francisco.

The first Imhoff Tanks constructed in this country were built in Atlanta, Ga., where seven or eight are now in operation. The City of Chicago has also experimented with the Imhoff Tank, and we believe it has been tried in Philadelphia. You have been misinformed if you were told that the tank has given satisfaction "in some cities and not in others," as it has given entire satisfaction wherever tried and is believed to be far superior to the ordinary septic tank. Prof. Charles Gilman Hyde of the Department of Sanitary Engineering of the University of California, has just returned after an absence of several months in the East and he is very much enthused over the Imhoff Tank. Would

advise you to write to Prof. Hyde or Sloan & Robson, who will undoubtedly be glad to give you additional information.

The undersigned told your city attorney at the recent convention in Walla Walla that septic tanks in use in California were successful in some places, but not in others. The Imhoff Tank, however, has apparently given satisfaction in every instance.

Q. On page 516 of the October number of "Pacific Municipalities" there appears the question, "Does the Board of Trustees pay for the Treasurer's bond or does the Treasurer pay it?" You replied that it is up to the Treasurer. I would like to call your attention to the Act of March 25, 1903 (Statutes 1903, page 476); also to the decision, in the case of San Luis Obispo v. Murphy, rendered April 11, 1912. This decision does not agree with your opinion. Please advise.

ANS. Yours of November 4th



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The only circular and seamless woven fire hose made.

All sizes for every possible use.

Eureka Fire Hose Mfg. Co., New York

54-58 Fremont Street

SAN FRANCISCO

duly received. In reply thereto, we desire to thank you for calling our attention to the answer given in our October number relating to the bond of a city treasurer given by a surety company. We were unaware of the Act of March 25, 1903, and the recent decision in the San Luis Obispo case relating thereto; therefore, we are obliged to confess that the opinion given on this question was an error, and that your city is liable for payment of the premium on the bond question.

Q. One of our city trustees tendered his resignation to the Board and the same was accepted last Monday, Nov. 4th. The Board then proceed to try to fill the vacancy by appointment as provided by the Municipal Corporation Act, but could not agree, two trustees voting for one applicant and two for another. There does not seem to be any likelihood of their being able to agree.

Does the trustee whose resignation was ac-

cepted continue in office until his successor is appointed or elected and qualifies? And, if so, would he have power to vote on the appointment of his successor?

Is there any law which authorizes the Board of Trustees to call an election to fill the vacancy in case the Board cannot agree on the appointment?

ANS. In reply to yours of Nov. 9th, would say that the trustee resigning continues to hold office until his successor is duly elected and qualified, nevertheless, it is our opinion that he would not have the right to vote on the appointment of his successor. The Board of Trustees could not proceed to fill the vacancy until the vacancy had occurred, and the vacancy could not occur until his resignation takes effect whereupon he would be out of office. There is a law which requires the Board of Trustees to call a special election to fill a vacancy in case they cannot agree on the appointment,

after the vacancy has existed for thirty days.

Q. We should like your opinion on a question with which we have to deal in handling the funds of our city.

Our municipal water plant gives us a nice profit each year beside taking care of itself. We need additional funds for other purposes, one of which is parks, but do not wish to tax the city too heavily for this purpose and would like to purchase certain lots which are just now available, for park purposes. May this surplus water funds be used for park purposes or for any other municipal purpose? Of course we do not wish to overstep our bounds in the use of the city's money, yet if such a course is possible it would greatly benefit our city.

ANS. In reply to yours of Nov. 8th, will say that in our opinion there is no legal obstacle to prevent you from using your profit from the waterworks for the purpose of acquiring park property.

Q. Our city has one telephone system, the Sunset. Now we have an application from an irrigation company for permit to connect their

offices with Home Telephone at Santa Ana. Would this permit give the Home a right to connect others if we give this permit and we petition the Board of Public Utilities Commission to compel the Sunset to give us switching connections with the Home? What would the Board's possible attitude be towards same? Answer by mail.

ANS. Your telegram of Nov. 13th duly received. In reply to the inquiry therein contained, we are of the opinion that it would be advisable to grant the Irrigation Company a revocable permit, that is a permit which would be revocable on, say, three days' notice, and containing further conditions that no other connections will be permitted under the Permit and that the Company agrees to remove all poles and wires within so many days after the Permit is revoked. We are not in a position to anticipate what the Railroad Commission would do in regard to giving you switching connections with the Home Company. We are quite sure

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California Corrugated Culvert Company

Los Angeles

West Berkeley

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that the Railroad Commission has jurisdiction over the matter and believe that in case any proceedings were brought they would do whatever they esteemed right and just in the premises, both to the people and the two companies interested; in other words, you may have full confidence in the present Railroad Commission.

Q. As our city is a member of the League will you kindly answer the following problem for me?

I hold the appointment of City Recorder and have filled this position for nearly two years.

My newspaper is the only paper published in this city and of course does the city printing. The claim has been made that as Recorder I have no right to enter into a contract with the city.

My position as Recorder does not give me one word to say in regard to the letting of any contract and I claim that if I am debarred from holding the position while doing the city printing I am being unjustly discriminated against by a state law.

I referred the question to the District Attorney's office of Los Angeles County and received an opinion that a recorder holding his position only at the will of the Board of Trustees and receiving no fixed salary was not strictly a city officer, but rather a city employe and as such the law prohibiting any city official with entering into a contract with the city would not apply.

I was requested by our Board of Trustees to refer this question to you and an early reply would be greatly appreciated.

ANS. In reply to your inquiry of Nov. 6th, we would answer as follows: Notwithstanding the fact that your position as Recorder does not give you one word to say in regard to the letting of any contracts, we believe nevertheless that you are debarred from holding the position while doing the city printing. We agree with you that you are being unjustly discriminated against by a state law, never-

theless, we are of the opinion that it is the law for the following reasons:

The last sentence of Section 874 of the Municipal Corporation Bill says that "the Board of Trustees shall annually, at a stated time, *contract* for doing the city printing, etc., etc."

Section 886 of the same bill says "no officer of such city or town shall be interested, directly or indirectly, in any contract with such city or town, etc."

Section 851 of the same bill under the caption of *officers* says "the government of such city or town shall be vested in * * * and recorder, etc."

The section last referred to designates the Recorder as one of the *officers* of the municipality, and we do not believe there is any doubt but what the courts would under these circumstances decide that you are an officer and not an employee. Section 886 says that *no* officer shall be interested in *any* contract, and Section 874 provides that the trustees shall *contract* for city printing. For these reasons we are impelled to say, regretfully, that in our opinion the Board of Trustees cannot enter into a contract with you while you hold the position of Recorder. If the District Attorney's office submitted a written opinion on the question and cited authorities we would like very much to see them, but unless they can refer to authorities to uphold their views on the question, we are inclined to think the law is as we have stated it.

P. S.—Notwithstanding the foregoing opinion we are almost tempted to advise the Board of Trustees to forget the existence of the law in this case if by so doing they would be subserving public interest, and providing of course that they would have the endorsement of your citizens.

What the Cities are Doing

Vollmer (Idaho) has voted \$10,000 bonds for waterworks.

Portland has received bids for the construction of a new city hall.

Ferndale (Wash.) has voted bonds to the amount of \$22,000 for water works.

Santa Monica has signed contracts for \$200,000 worth of street paving.

Dinuba will vote on the proposition to issue \$42,000 bonds for a sewer system.

Newman Trustees were recently petitioned to procure additional fire fighting apparatus.

Pasadena is purchasing a small gasoline runabout for its municipal lighting department.

Moscow (Idaho) has contracts recently awarded for about 70,000 yards of street paving.

Burlingame has voted bonds to the amount of \$175,000 for the construction of municipal waterworks.

San Francisco expects to have the Municipal Railway in operation about the middle of December.

San Leandro is advertising for bids for furnish an auto fire hose truck, the estimated cost of which is \$3500.

Oroville Trustees have adopted plans and specifications for a storm water system to cost approximately \$32,000.

Cenralia will have an election on Dec. 10 on the proposition of issuing \$300,000 bonds to purchase the local water plant.

Sacramento. The work of municipal tree planting will soon be taken up here under supervision of the State Forester.

Chico. The High School Trustees are advocating a bond issue of \$15,000 for improvements to the present High School.

Anaheim, Fullerton, Santa Ana and Huntington Beach all voted big majorities at the recent election in Orange County on the proposition to issue \$1,270,000 bonds for good roads.

Mill Valley citizens are talking of securing an automobile fire engine; the need of such apparatus was clearly shown at a recent fire.

Los Angeles. The city council recently declined to pass an ordinance prohibiting more than 50 chickens or 25 rabbits on a 50-foot lot.

Suisun Trustees recently decided to call a special election on the proposition to issue bonds for improvements to the municipal water system.

Long Beach is contemplating a bond issue for two pleasure piers, acquiring of harbor frontage, and purchase of a municipal lighting plant.

Calistoga is putting down a lot of gutters and cement crossings. Its citizens are very proud of their High School and its fine equipment.

Winters Trustees have decided to commence the construction of good sidewalks; the first ones put down will run from the main part of town to the schools.

Redlands is considering the purchase of a second automobile hose wagon for its Fire Department. The installation of a fire alarm system is also under consideration.

Los Angeles council is considering an ordinance prohibiting smoking on all street cars. The patrons of the street cars in Kansas City recently voted 6 to 1 against smoking.

Santa Ana. Trustee Alderman is advocating a bond issue for various municipal improvements, including fire apparatus, paving street intersections and improvements to the waterworks.

Los Angeles councilmen have been considering the advisability of establishing a municipal railroad commission. Councilman Reed is opposed to the proposition that the municipal railroad be handled by a committee of the council.

Berkeley will probably vote before long on the proposition to construct and operate a municipal lighting plant. Mayor Wilson has suggested that bonds be voted to the amount of \$500,000.

Fullerton is about to install a sewer system under the "local improvement act of 1901." The citizens recently voted bonds to the amount of \$80,000 for water works, and \$132,000 for street paving.

Biggs citizens are talking of installing a sewer system. Better sidewalks are also demanded and a committee was recently appointed to wait upon the council and ask that grades be established.

Seattle is considering the establishment of a municipal employment bureau. The council has commenced proceedings to submit a proposed bond issue of \$425,000 for extensions to the municipal lighting plant.

Continued on page 669

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WHAT THE CITIES ARE DOING—Continued from Page 667

San Francisco, Oakland, Berkeley and Alameda have sent representatives to Washington to try and convince the federal authorities of the necessity of allowing the Hetch Hetchy Valley to be used as a source of water supply for these cities.

Everett has installed a pulmotor at an expense of \$250 for the use of the police and fire department on future cases of drowning, asphyxiation, electric shock or poisoning. In Chicago the pulmotor has revived 200 people out of 260 upon whom it was used.

Tacoma has a lot of municipal improvements under construction; they include nine asphalt paving jobs, costing \$353,798; six grading jobs costing \$48,561; one sanitary sewer costing \$23,000; one plank and side-

walk contract for \$49,500; two vertical lift bridges costing \$689,739, and numerous smaller grading and sidewalk contracts.

Alhambra Artesia, Azusa Claremont, Pomona, Compton, Covina, Downing, Glendora, Lordsburg, Monrovia, Norwalk, Pasadena, South Pasadena, Rivera, San Dimas. San Gabriel and Whittier have joined together in a movement to establish a great out-fall sewer running from the mountains to the sea to serve all the cities of the San Gabriel Valley. On a rough estimate the enterprise is expected to cost about \$3,000,000. Septic tanks and disposal works will probably be used before running the sewage into the sea or perhaps the effluent may be utilized for irrigation.

ERRATUM

In your October issue in the article "Equitable Assessments" on page 501, third paragraph, it is printed "Frame buildings for flats or houses \$1.50 to \$2 a square foot, or \$12 to \$16 per cubic foot." This should read 12 to 16 *cents* per cubic foot.

This error was overlooked in proof reading the type-written copy you received. Please make a correction notice in your next issue.

Yours truly,
JOHN GINTY,
Assessor, San Francisco.

LIST OF RESPONSIBLE FIRMS TO BE CALLED ON TO BID FOR PUBLIC WORK OR SUPPLIES

Write for Catalogs. Mention Pacific Municipalities When Writing

This list is arranged as a guide for the accommodation of city officials where advertising for bids is not necessary.

Accountant

William Dolge, C. P. A., 311 California St., S. F.

Asphalt Machinery

A. L. Young M'chy Co. 26-28 Fremont St., S. F.

Barber Asphalt Paving Co., S. F. & L. A.

Arch. Terra Cotta

Gladding, McBean & Co., Crocker Bldg, S. F.

Steiger Terra Cotta & Pottery Wks, 729 Mills Bldg., S. F.

N. Clark & Sons, 112-116 Natoma St., S. F.

Automobile Public Service Wagons

American La France Fire Eng. Co., 660 Mission St., S. F.

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Webb Motor Fire Apparatus Co., 550 Montgomery St., S. F.

Bitulithic Pavement

Warren Brothers Company, Los Angeles, Cal.

Concrete Mixers

Barber Asphalt Paving Co., S. F. & L. A.

Parrott & Co., San Francisco & Los Angeles

Constructing Engineers

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Consulting Engineers

Sloan & Robson, Nevada Bank Bldg., S. F.

American Engineering Corporation, 57 Post St., S. F.

Burns & McDonnell, Riverside, Cal., K. C., Mo.

Roberts & Dennicke, Sheldon Bldg., S. F.

Culverts

Cal. Corrugated Culvert Co., Los Angeles and W. Berkeley

Standard Corrugated Pipe Co., S. F. & L. A.

U. S. Pipe Co., S. F.

Dump Carts and Wagons

A. L. Young M'chy Co., 26-28 Fremont St., S. F.

Electrical Plants & Machinery

A. L. Young M'chy Co., Fremont St., S. F.

Engines

Dow-Williams Engine Co., Sheldon Bldg., S. F.

Engravers and Bond Printers

A. Carlisle & Co., 251 Bush St., S. F.

Sierra Art Eng. Co., Front & Com. Sts., S. F.

Fire Department Equipment

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Engines

Gorham Eng & Fire App Co., 48 Fremont St S. F.

Fire Hose

Gorham Eng & Fire App Co., 48 Fremont St S. F.

The Gutta Percha & Rubber Mfg. Co., 34 Fremont St., S. F.

Eureka Fire Hose Mfg. Co., 54-58 Fremont St., S. F.

Bowers Rubber Works, San Francisco

Fire and Police Boats

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Fire Pumps

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Gasoline Engines

Gorham Eng. & Fire App. Co., 48 Fremont S. F.

Hydrants

Water Works Supply Co., Monadnock Bldg., S. F.

Inspections and Tests

Robt. W. Hunt & Co., 418 Montgomery, S. F.

Smith, Emery & Co., 651 Howard St., S. F.

Municipal Accountant

William Dolge, C. P. A., 311 California St., S. F.

Municipal Castings

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Municipal Engineers

Sloan & Robson, Nevada Bank Bldg, S. F.

Roberts & Denicke, 461 Market St., S. F.

Smith, Emery & Co., 651 Howard St., S. F.

Municipal Printers

A. Carlisle & Co., 251-253 Bush St., S. F.

Municipal Water Works

Geo. B. Dow Pumping Engine Co, S. F. & L. A.

Smith, Emery & Co., 651 Howard St., S. F.

Pavement Materials

Barber Asphalt Paving Co., S. F. and L. A.

Warren Brothers Company, Los Angeles, Cal

Pipes

U. S. Iron Pipe & Foundry Co., 701 Monadnock Bldg., S. F.

Pumping Machinery & Supplies

Geo. E. Dow Pumping Engine Co, S. F. & L. A.

Water Works Supply Co., Monadnock Bldg., S. F.

LIST OF RESPONSIBLE FIRMS—Continued

Playground Apparatus

A. L. Young Machinery Co., S. F.

Road Machinery

Good Roads Mach'y Co., San Francisco.

A. L. Young M'chy Co., Fremont St., S. F.

Barber Asphalt Paving Co., S. F. & L. A.

A. F. George & Co., Los Angeles.

Road Oil

Standard Oil Co., S. F.

Roofing

Barber Asphalt Paving Co., S. F. and L. A.

Rubber Goods

Bowers Rubber Works, San Francisco

Sanitation Expert

Harold Farnsworth Gray, Berkeley, Cal.

Scrapers

A. L. Young M'chy Co., Fremont St., S. F.

Septic Tanks

Pacific Flush Tank Co., Chicago.

Sewage Pumps

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Sewer Fittings

Pacific Flush Tank Co., Chicago.

Sewer Pipe and Terra Cotta

Gladding, McBean & Co., Crocker Bldg., S. F.

Steiger Terra Cotta Co., Mills Bldg., S. F.

N. Clark & Sons, 112-116 Natoma St., S. F.

Sewer Systems

Sloan & Robson, Nevada Bank Bldg., S. F.

Street Sweepers

A. L. Young M'chy Co., Fremont St., S. F.

Water Meters

Neptune Meter Co., S. F. & L. A.

Water Works Supply Co., Monadnock Bldg.,

S. F.

Water Tanks and Towers

Des Moines Bridge & Iron Wks., Monadnock

Bldg., S. F.

Water Works Equipment

Water Works Supply Co., Monadnock Bldg.,

S. F.

Geo. E. Dow Pumping Engine Co, S.F. & L.A.

Wires

John A. Roebling's S6ns Co., S. F.

Water Works Supply Co., Monadnock Bldg.,

S. F.

Valves

Water Works Supply Co., Monadnock Bldg.,

S. F.

Sidewalks (Cement)

Steel Protected Concrete Co., Phila., Pa.

Street Signs

A. L. Young Mch. Co., S. F.

Cal. Metal Enameling Co., Bairdstown, L. A.

TERRA COTTA, PRESSED BRICK, PIPE,
FIRE PROOFING, ROOFING TILE,
FLUE LININGS, FIRE TILE,
LAUNDRY TRAYS,
ETC.

GLADDING, McBEAN & CO.

WORKS

LINCOLN, CAL.

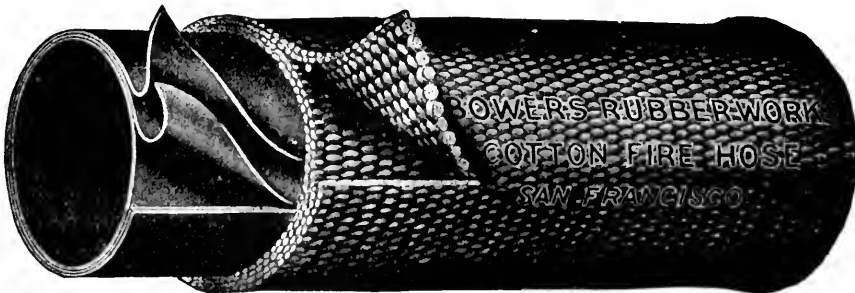
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Gravel and Sand**



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**Cable Address "Worswick"
Western Union Universal Code**

Fresno, California

Mention "Pacific Municipalities" when writing for catalogs.

What the City Engineer

of the second largest City of Southern California says of

Vitrified Sewer Pipe

"Honorable Council, San Diego, Cal.

"Gentlemen: In the matter of the use of cement sewer pipes to be used in the construction of the extension of the sewer system in this city, I beg leave to report that, in company with Councilmen Woods, Dodson and Adams, I visited the city of Los Angeles and vicinity for the purpose of examining into the condition of a number of cement pipes laid in that city for sewage purposes. The cement pipes examined were reputed to have been in use from twenty to thirty years. I found none of them very flattering. Some were in very bad condition, in fact soft enough to allow one to thrust an ordinary pen-knife through the bottom of the pipe with but little effort, the cement having been entirely eaten away.

"The pervious character of all cement work is a well-known fact; the most dense will absorb from 8 to 10 per cent of its own weight in water, and more often 10 to 20 per cent. This fact alone would seem to be inimical to the lime contained in the cement, as the absorption of 10 to 20 per cent of liquid sewage, imprisoning the same for an indefinite time, will ultimately evolve hydro-chloric and sulphuric acid gases that would attack the lime in the cement and rapidly decompose the pipe into a spongy mass, as may be seen in the septic tanks at the Soldiers' Home at Sawtelle.

"It also appears that the sewage, after this condition of the pipe has obtained, percolates through the pipe and soaks up the soil immediately under the pipes, decomposing, forming acid gases as before, attacking the pipe from the outside and completing its ultimate destruction, this filtering sewage otherwise becoming very unsanitary.

"It is argued that a cement sewer pipe as it is made under modern methods will be free from any of the above objections. I can only say that it is still a cement pipe, subject to absorption and filtration in a more or less degree, according to workmanship. A vitrified salt-glazed sewer pipe, burned to the point of vitrification, has been proved beyond all question to be proof against any destroying agent whatever, except fire, and is used in all conservative practice of able sanitary engineers throughout the United States. There are, however, a number of sanitary engineers who advocate the use of cement pipes, but they are away in the minority. It may, in time, be proven to be good, but under the present very limited knowledge of the subject it is a serious hazard to use it in a \$200,000 expenditure. When inspection, hauling and other incidental expenses of the cement pipe is taken into consideration, there is practically no difference in the cost between it and a first-class salt glazed vitrified sewer.

"With all due respect for your honorable body, may I ask, 'Why take the risk?'

"A very striking example of the decomposition of cement work from sewage gas may be seen in the septic tank at our county hospital, this city.

"Very truly,

San Diego, June 5, 1911.

E. M. CAPPS, City Engineer."

Pacific Sewer Pipe Company

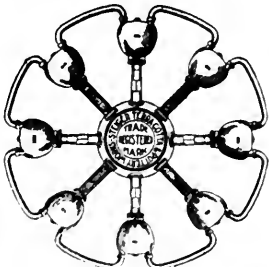
MANUFACTURERS OF

"Sewer Pipe That Stays Put"

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Los Angeles, Cal.

Steiger Terra Cotta and Pottery Works



MAIN OFFICE AND YARDS:

City Yard, 18th and Division Streets

Main Office: 729 Mills Building

Phone Douglas 3010

SAN FRANCISCO, CAL.

Factory, South San Francisco

San Mateo County

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Lake asphalt for
shipment to make
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The asphalt
is transported
by over-head cable
from Lake to ship

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is made of the only perfect waterproofer—Trinidad Lake asphalt. It is Nature's own product—no mystery; no guess-work. Genasco has the life that lasts. Proven by over thirty years' use of natural asphalt.

The Kant-leak Kleet is the greatest invention for applying roofing. Makes seams positively water-tight without cement. Adds beauty to the roof. Supplied in rolls of Genasco when specified.

Ask your dealer for Genasco. Gold Medal (highest award) Seattle, 1909. Mineral or smooth surface. Look for the hemisphere trademark. Write for samples and the Good Roof Guide Book.



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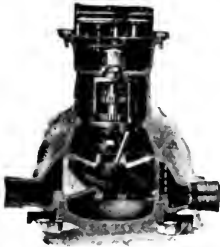
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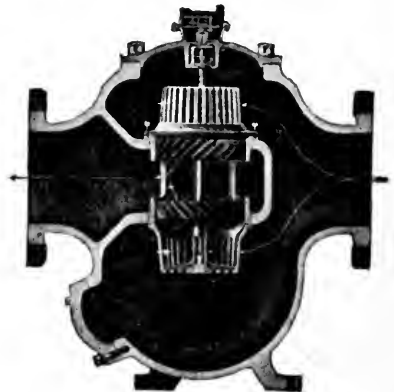
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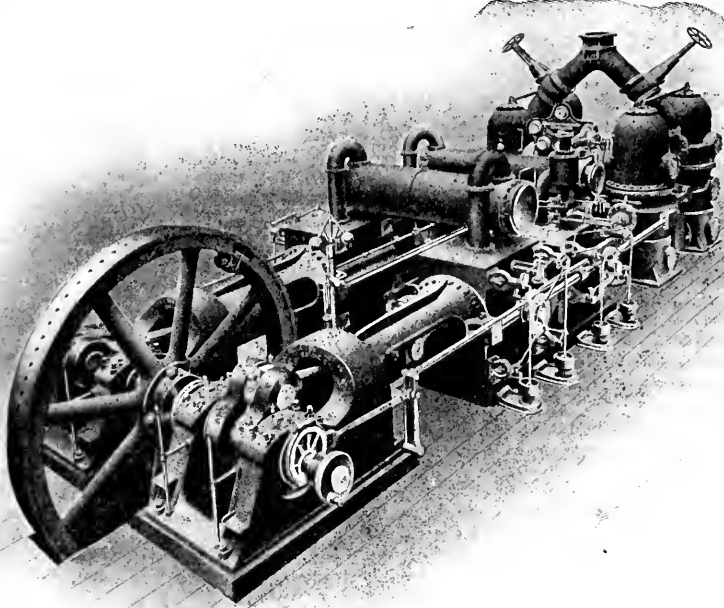
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